

## **Appendix G: RFLMA Contact Records**

RFLMA contact records issued during 2008, as well as several that were issued in 2007 but not closed out by December 31, 2007, are included in this appendix.

## **Contact Record 2008-01**

## ROCKY FLATS SITE REGULATORY CONTACT RECORD

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**Purpose:** Completion of Additional Ecological Sampling in accordance with RFLMA Attachment 2, Table 5

**Contact Record Approval Date:** April 2, 2008

**Site Contact(s) / Affiliation(s):** Scott Surovchak, DOE; Linda Kaiser, S.M. Stoller; George Squibb, S.M. Stoller; Rick DiSalvo, S.M. Stoller

**Regulatory Contact(s) / Affiliation(s):** Carl Spreng, CDPHE

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**Discussion:** RFLMA Attachment 2, Section 5.3.7, "Ecological Sampling," states:

The Ecological Risk Assessment determined that residual contamination does not represent a significant risk of adverse ecological effects. The CAD/ROD, however, requires that specific additional sampling be conducted to reduce the uncertainties determined in the Ecological Risk Assessment. Additional ecological sampling is listed in Table 5.

Table 5, "Ecological Sampling," is as follows:

Requirement	Description of Activity	Frequency	Documentation/ Reporting	Exit Strategy
Sample surface water and sediment for: Ammonia Cyanide Radium-228	Collect surface water and sediment samples from Ponds A4, B5, and C2	<u>Surface water:</u> Quarterly (minimum of 3)  <u>Sediment:</u> Once	Report data in quarterly and annual reports; evaluate in CERCLA Periodic Review for relevance of the data to the ecological risks and uncertainty identified in the CAD/ROD	Consultative process or periodic CERCLA review

Sampling and analysis was completed and the evaluation is described in a Technical Memorandum, "Evaluation of 2007 Surface Water and Sediment Data," which is included as Attachment A to this Contact Record.

The Technical Memorandum concludes that no further sampling is required.

**Resolution:** After consultation as required under RFLMA, CDPHE approved the completion of the RFLMA requirements for additional ecological sampling and no further sampling is required.

A discussion of the additional sampling, the Technical Memorandum and the approval of the completion of additional sampling requirements will be included in the RFLMA Annual Report for calendar year 2007. The discussion will also be included in the next CERCLA 5-Year Review Report.

**Closeout of Contact Record:** This Contact Record will be closed when the Calendar Year 2007 Annual Report with the information described in the Resolution section, above, is posted in accordance with RFLMA.

**Contact Record Prepared by:** Rick DiSalvo, S.M. Stoller

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**Distribution:**

Carl Spreng, CDPHE

Scott Surovchak, DOE

Linda Kaiser, Stoller

Rocky Flats Contact Record

File



**Attachment A**

**ROCKY FLATS SITE REGULATORY CONTACT RECORD 2008-01**

**Technical Memorandum,**

**Evaluation of 2007 Surface Water and Sediment Data,  
CH2MHill, March 3, 2008**

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## Evaluation of 2007 Surface Water and Sediment Data

PREPARED FOR: DOE - Legacy Management  
PREPARED BY: Julie Keating/CH2M HILL  
COPIES: Laura Brooks/CH2M HILL  
DATE: March 3, 2008

### Introduction

A Comprehensive Risk Assessment (CRA) was prepared for the Rocky Flats Environmental Technology Site (RFETS) as part of the Resource Conservation and Recovery Act (RCRA) Facility Investigation - Remedial Investigation (RI) process (DOE 2006a). Included in the CRA was an Ecological Risk Assessment for seven aquatic exposure units (AEUs) (i.e., drainages within the RFETS boundaries). The conclusion of the CRA for the AEUs was that significant risks from exposure to ecological chemicals of potential concern (ECOPCs) in surface water and sediment are not expected. However, because of uncertainties due to limitations in the data (e.g., temporal and spatial limitations), further monitoring was recommended in order to determine whether ECOPCs with somewhat uncertain risks may be of greater ecological concern than indicated by the limited data available.

Through the consultative process with the U.S. Department of Energy (DOE), U.S. Environmental Protection Agency (EPA), and the Colorado Department of Public Health and Environment (CDPHE), an ecological sampling strategy was developed to address the uncertainties identified in the CRA for the AEUs. Table 5 in the Rocky Flats Legacy Management Agreement (RFLMA), summarizes the ecological sampling requirements that were agreed to by the parties listed above. These sampling requirements included the following:

- Sampling of surface water and sediment for ammonia, cyanide, and radium-228
- Surface water and sediment samples to be collected from Ponds A4 (North Walnut Creek AEU), B5 (South Walnut Creek AEU), and C2 (Woman Creek AEU)
- Surface water sampling to be conducted quarterly for a minimum of three quarters; sediment sampling to be conducted once

### Results

The attached Table 1 and Table 2 summarize the results from the surface water samples and sediment samples, respectively, that were collected in 2007. Details for each ECOPC are provided below for surface water and sediment.

### Ammonia

Ammonia was only detected in two surface water samples (one sample collected in the South Walnut Creek AEU [Pond B-5] in February 2007 and one sample collected in the Woman Creek AEU [Pond C-2] in February 2007). The ecological screening levels (ESLs) for ammonia that were presented in the CRA were based on un-ionized ammonia. The current CDPHE water quality standards for ammonia are based on total ammonia (5 CCR 1002-31.11). Table 1 shows a comparison of the detected results for ammonia and the detection limits for the nondetect samples to the ESLs based on un-ionized ammonia and total ammonia. The un-ionized fraction of ammonia in the surface water samples was calculated using the methods described in the CRA (DOE 2006a). The total ammonia ESLs and acute criteria were calculated using formulas provided in 5 CCR 1002-31.11. The AEU-specific pH and temperature values shown on Table A5.1 of Volume 15B2 of the CRA were used in the calculations. None of the detected results or detection limits for ammonia exceeded the ESLs or acute criteria.

Sediment samples were collected in each of the three ponds for ammonia. Results for ammonia in sediment ranged from 116 to 434 milligrams per kilogram (mg/kg). An ESL was not presented in the CRA for ammonia in sediments so a comparison value was not available for these results. However, the low levels and infrequent detections of ammonia in surface water indicate the sediments are not a continuing source of ammonia to the surface water bodies.

The data from the additional samples indicate that ammonia does not pose a greater ecological concern than indicated by the risk results reported in the CRA that were considered uncertain because of the limitations in the data then available. Therefore, no further sampling for ammonia is needed.

### Cyanide

Cyanide was not detected in any of the surface water samples and all of the detection limits were less than the acute criterion. The acute criterion is a CDPHE standard and is based on free cyanide. The detection limits were all greater than the chronic ESL ranging from 0.0015 to 0.0024 milligrams per liter (mg/L). The chronic ESL, which is not a CDPHE standard, is 0.0005 mg/L.

Sediment samples were collected in each of three ponds for total cyanide. Results for total cyanide in sediment ranged from 0.159 to 1.12 mg/kg. An ESL was not presented in the CRA for cyanide in sediments so a comparison value was not available for these results. However, the lack of detections of cyanide in surface water indicate the sediments are not a continuing source of cyanide to the surface water bodies.

The data from the additional samples indicate that cyanide does not pose a greater ecological concern than indicated by the risk results reported in the CRA that were considered uncertain because of the limitations in the data then available. Therefore, no further sampling for cyanide is needed.

### Radium-228

Radium-228 was detected in three surface water samples (two samples from North Walnut Creek AEU [Pond A-4] and one sample from Woman Creek AEU [Pond C-2]). As shown on Table 1, the detected levels of radium-228 and the detection limits for the nondetect samples do not exceed the chronic ESL for surface water. The chronic ESL shown on Table 1 (3.4 picocuries per liter [pCi/L]) is a revised value from the CRA (CRA ESL = 0.849 pCi/L) and is based on a more current version of RESRAD BIOTA (DOE 2006b) than the version used to develop the ESL for the CRA.

Sediment samples were collected in each of the three ponds for radium-228. Radium-228 was detected in the sediment samples from Pond A-4 (1.53 picocuries per gram [pCi/g]) and Pond C-2 (1.59 pCi/g). These detected levels and the detection limit for the sample for Pond B-5 (0.696 pCi/g) are less than the sediment ESL presented in the CRA (87.8 pCi/g).

The data from the additional samples indicate that radium-228 does not pose a greater ecological concern than indicated by the risk results reported in the CRA that were considered uncertain because of the limitations in the data then available. Therefore, no further sampling for radium-228 is needed.

### **Summary**

The results of the surface water and sediment sampling conducted in 2007 support the conclusions of the CRA. Uncertainties related to the ammonia, cyanide, and radium-228 data have been addressed and no further sampling is needed.

### **References**

- U.S. Department of Energy (DOE). 2006a. RCRA Facility Investigation-Remedial Investigation/Corrective Measures Study-Feasibility Study Report for the Rocky Flats Environmental Technology Site; Appendix A – Comprehensive Risk Assessment. June.
- U.S. Department of Energy (DOE). 2006b. RESRAD Family of Codes. Argonne National Laboratory. <http://web.ead.anl.gov/resrad>.
- U.S. Department of Energy (DOE). 2005. Final Comprehensive Risk Assessment Work Plan and Methodology. September. Revision 1.

**Table 1**  
**Surface Water Results - 2007**  
**Rocky Flats Site, Colorado**

North Walnut Creek AEU - Pond A-4						
Analyte	Units	2007 Results <sup>1</sup>			Chronic ESL	Acute Criterion
		Sample 1	Sample 2	Sample 3		
Total Ammonia <sup>2</sup>	mg/L	0.01U	0.03U	0.03U	2.2	8.1
Un-ionized Ammonia <sup>3</sup>	mg/L	0.00023U	0.00068U	0.00068U	0.02	0.19
Cyanide	mg/L	0.0024U	0.0015U	0.0015U	0.0005	0.005
Radium-228 <sup>4</sup>	pCi/L	0.472U	0.593	1.81	3.4	NA

South Walnut Creek AEU - Pond B-5						
Analyte	Units	2007 Results <sup>1</sup>			Chronic ESL	Acute Criterion
		Sample 1	Sample 2	Sample 3		
Total Ammonia <sup>2</sup>	mg/L	0.069J	0.03U	0.03U	2.0	6.8
Un-ionized Ammonia <sup>3</sup>	mg/L	0.0018U	0.00078U	0.00078U	0.02	0.199
Cyanide	mg/L	0.0024U	0.0015U	0.0015U	0.0005	0.005
Radium-228 <sup>4</sup>	pCi/L	0.448U	0.687U	0.382U	3.4	NA

Woman Creek AEU - Pond C-2						
Analyte	Units	2007 Results <sup>1</sup>			Chronic ESL	Acute Criterion
		Sample 1	Sample 2	Sample 3		
Total Ammonia <sup>2</sup>	mg/L	0.014J	0.03U	0.03U	2.5	9.6
Un-ionized Ammonia <sup>3</sup>	mg/L	0.00025U	0.00054U	0.00054U	0.02	0.177
Cyanide	mg/L	0.0015U	0.0015U	0.0015U	0.0005	0.005
Radium-228 <sup>4</sup>	pCi/L	0.854U	0.55U	1.34	3.4	NA

AEU = aquatic exposure unit  
CRA = Comprehensive Risk Assessment  
ESL = ecological screening level  
J = estimated  
mg/L = milligrams per liter  
pCi/L = picocuries per liter  
U = nondetect

1 = 3 samples were collected in 2007 from each AEU shown above - samples collected in Feb/March, May, and September  
2 = CDPHE aquatic life criteria for ammonia currently based on Total ammonia results  
3 = in CRA, total ammonia results were converted to un-ionized ammonia results and compared to CDPHE aquatic life criteria for un-ionized ammonia; percentages used in CRA were applied to 2007 results to estimate un-ionized ammonia (Table A5.4 in Volume 15B2 of CRA [DOE 2006])  
4= updated ESL based on current version of RESRAD BIOTA (Version 1.21); ESL in CRA was based on RESRAD BIOTA 1.0

**Table 2**  
**Sediment Results - 2007**  
**Rocky Flats Site, Colorado**

North Walnut Creek AEU - Pond A-4			
Analyte	Units	2007 Results <sup>1</sup>	ESL
Total Ammonia	mg/kg	229	NA
Cyanide	mg/kg	1.12J	NA
Radium-228	pCi/g	1.53	87.8

South Walnut Creek AEU - Pond B-5			
Analyte	Units	2007 Results <sup>1</sup>	ESL
Total Ammonia	mg/kg	434J	NA
Cyanide	mg/kg	0.353J	NA
Radium-228	pCi/g	0.696U	87.8

Woman Creek AEU - Pond C-2			
Analyte	Units	2007 Results <sup>1</sup>	ESL
Total Ammonia	mg/kg	116J	NA
Cyanide	mg/kg	0.159J	NA
Radium-228	pCi/g	1.59	87.8

AEU = aquatic exposure unit  
 CRA = Comprehensive Risk Assessment  
 ESL = ecological screening level  
 J = estimated  
 mg/kg = milligrams per kilogram  
 pCi/g = picocuries per gram  
 U = nondetect

1 = sediment samples were collected July 13, 2007 from each AEU shown above

## **Contact Record 2008-02**



# ROCKY FLATS SITE

## REGULATORY CONTACT RECORD

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**Purpose:** Discussion and Approval of Excavation Greater Than 3 Feet Below Grade to Breach Dams A-1, A-2, B-1, B-2, B-3 and B-4.

**Contact Record Approval Date:** June 18, 2008

**Site Contact(s) / Affiliation(s):** Scott Surovchak; DOE; Linda Kaiser, S.M. Stoller; John Boylan, S.M. Stoller; George Squibb, S.M. Stoller; Rick DiSalvo, S.M. Stoller

**Regulatory Contact(s) / Affiliation(s):** Carl Spreng, CDPHE

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**Discussion:** Prior to completing the cleanup and closure of Rocky Flats, DOE issued the October 2004, *Pond and Land Reconfiguration Environmental Assessment Comment Response, and Finding of No Significant Impact (DOE/EA-1492)*, in which it proposed to breach Dams A-1 and A-2 (located in North Walnut Creek) and Dams B-1, B-2, B-3 and B-4 (located in South Walnut Creek) (DOE 2004). DOE proposed the dam breach to reduce the active management and maintenance needs by constructing “notches” in the dams, which would allow water to flow through the notches with lower upstream pool levels. Now that Rocky Flats has been cleaned up, has undergone closure, and is in the long term surveillance and maintenance phase, DOE intends to implement the proposed action in the Environmental Assessment. This work will involve excavation and heavy construction activities.

On March 6, 2008 and May 6, 2008, DOE, CDPHE and Stoller staff consulted regarding the proposed dam breaching. The attached Figures 1 and 2 show the footprints of the work area. Figure 3 shows the typical notch configuration to breach the dams. An associated stop log structure in each notch is designed to allow leakage during moderate flows and overtopping during high flows, thereby attenuating flow rates but not retaining significant quantities of water. Figure 3 also shows the typical stop log structure location in each notch. Figure 4 shows Dam C-1, after breaching in a similar manner was completed in 2005.

The excavation and construction involves actions prohibited by the institutional controls (ICs) incorporated in the Rocky Flats Legacy Management Agreement (RFLMA), and thus requires regulatory approval. CDPHE approval for this work is requested before final design and procurement activities proceed. The final design for procurement must be completed in June 2008 so that the construction work may begin in late September 2008. Construction is expected to take 3 to 4 months to complete.

One RFLMA well and one RFLMA surface-water sampling point are located in the construction footprint and will need to be replaced and possibly relocated. Activities that may damage or impair the proper functioning of engineered components, such as monitoring wells are prohibited by ICs (RFLMA, Attachment 2, Table 4, Control 7). The objective of IC 7 regarding prohibition of activities that may damage or impair water monitoring components is to ensure that required monitoring information is obtained and evaluated in accordance with RFLMA requirements for timely reporting and action determinations, if triggered by monitoring results.

Table 1 shows the RFLMA monitoring locations that will be removed or otherwise impaired during construction. As the design progresses, removed sampling points will be replaced at locations to be determined after consultation with CDPHE. Alternative temporary monitoring locations may be established based on the outcome of consultation. Routinely scheduled samples will be collected and analyzed shortly before any monitoring point is removed.

**Table 1. RFLMA Monitoring Locations Expected to be Impacted During Construction.**

ID	Location	Purpose	Monitoring Frequency	Analytes
TH046992	South Walnut Creek between Ponds B-3 and B-4	Sentinel well-downgradient of East Trenches Plume Treatment System (ETPTS) intercept trench	Semiannual	VOCs
POM2	South Walnut Creek at Pond B-4 outlet	Surface-water performance monitoring for ETPTS	Semiannual	VOCs

Furthermore, the excavation work will exceed the 3-foot-depth limit prohibited by ICs (RFLMA, Attachment 2, Table 4, Control 2) and thus requires pre-approved procedures.

The objective of IC 2 regarding excavations with a depth that exceeds 3 feet is to maintain the current depth to subsurface contamination or contaminated structures. This IC also results in achieving compliance with the CDPHE risk management policy of ensuring that residual risks to the site user are at or below  $1 \times 10^{-6}$ . As discussed further, below, the proposed work achieves the risk management policy goal.

The excavated soils will be placed in the spillways adjacent to each dam. Some excavated soils from within the notched area could also be used to provide materials for revegetation and minor recontouring activities in the Central Operable Unit to maintain/improve erosion controls.

The fill placement activity will be in conformance with the applicable institutional controls, and the final elevation after fill placement and reseeded is expected to be slightly above the existing elevations. Erosion controls for the excavation, construction, and fill activities will be employed in accordance with the *Erosion Control Plan for Rocky Flats Property Central Operable Unit*, DOE-LM/1497-2007, July 2007.

CDPHE has requested that the following information be included in contact records for soil excavation related to IC 2 that will not return soil to the preexisting grade:

*1 - Provide information about any remaining subsurface structures in the vicinity so that the minimum cover assumption will not be violated (or state that there are none if that is the case).*

There are no subsurface building or tunnel structures in the vicinity of the dams. However, outlet works, pipes, valves, drop structures, spillways, and miscellaneous components are integral to the dam structures. Table 2 lists the items that are in or adjacent to the notch areas associated with each dam.

The construction approach will be to remove any components or structures to below three feet from final grade. Openings in pipes, manholes, and drop structures will be filled with grout to the extent practicable on an as needed basis. Removed items will be dispositioned off-site as solid waste. Process knowledge regarding the material of construction for each item will be confirmed by visual inspection. Radiological field screening of these waste items will also be performed to identify waste with levels of residual radioactive contamination that require disposal as radioactive waste and controlled for off-site disposal under DOE Directives and Policy. If process knowledge cannot be confirmed by visual inspection additional characterization will be performed to determine proper disposition. Waste will be staged in a manner to prevent run-on and runoff of precipitation and surface water pending off-site disposition.

**Table 2. Items in or Adjacent to Each Dam Notch Area**

Dam	Item/Feature	Detail
A-1	main outlet pipe	corrugated metal pipe (cmp): ~100ft, 48in dia., full of grout; concrete cutoff collars, std metal end section
	outlet/valve works	steel platform; misc. concrete; valve components
	transfer pipe from N. Walnut Cr. Bypass Pipeline to Pond A-1	cast iron pipe (cip): ~40ft, 10in dia.
	valve A1-5 casing (vertical riser pipe on transfer pipe)	cmp: ~10ft, 24in dia.
A-2	main outlet pipe	ductile iron pipe (dip): ~150ft, 10in dia., full of grout; concrete cutoff collars
	outlet/valve works	concrete thrust blocks, valve and lift pedestals; valve components
	service spillway pipe	cmp: ~125ft, 42in dia.; outfall: std metal end section
	service spillway inlet drop structure	trash rack; concrete box drop structure
B-1	piezometer TH046592	typical well components
	piezometer TH046792	typical well components
	low level outlet pipe	dip: ~100ft, 10in dia., full of grout; concrete cutoff collars
	low level outlet/valve works	valve components; riser casing
	strip drain pipe	abs plastic: ~50ft, 4in dia.
	main outlet pipe	cmp: ~100ft, 36in dia., full of grout, std metal end section; conc. drop structure: full of concrete;
B-2	low level outlet pipe	dip: ~100ft, 10in dia., full of grout; concrete cutoff collars

Dam	Item/Feature	Detail
	low level outlet/valve works	valve components; riser casing
	service spillway drop structure	concrete drop box; trash rack
	service spillway outlet pipe	cmp/hdpe: ~100ft, 36in dia.
	old WWTP diversion pipe valve	valve components; riser casing
	old WWTP pipeline manhole	typical concrete MH
B-3	piezometer TH046992	typical well components
	piezometer TH047092	typical well components
	service spillway/drop structure	metal railing; concrete drop box
	service spillway pipeline	cmp: ~90ft, 48in dia., standard metal end section
	strip drain pipe	abs plastic: ~20ft, 4in dia.
	low level standpipe	dip: ~5ft, 10in dia.
	low level outlet pipe	dip: ~30ft, 10in dia.
	low level outlet valve	valve components and riser
B-4	service spillway	concrete spillway, box culvert, and flip bucket
	old stairway footers	concrete blocks

2 - Provide information about any former IHSSs/PACs or other known soil or groundwater contamination in the vicinity (or state that there is no known contamination).

The ponds are associated with the following former IHSSs/PACs:

Pond A-1 – IHSS 142.1

Pond B-2 – IHSS 142.6

Pond A-2 – IHSS 142.2

Pond B-3 – IHSS 142.7

Pond B-1 – IHSS 142.5

Pond B-4 – IHSS 142.8

More detailed information on these PACs/IHSSs and the disposition of these areas can be found in the *RCRA Facility Investigation – Remedial Investigation/Corrective Measures Study – Feasibility Study Report for the Rocky Flats Environmental Technology Site(RI/FS) Appendix B - FY2005 FINAL Historical Release Report*.

A Rocky Flats Cleanup Agreement (RFCA) accelerated action resulted in removal of soil and sediment from ponds B-1, B-2, and B-3 in 2005. This accelerated action is documented in the May 2005 *Closeout Report for IHSS Group NE-1 (Ponds B-1, B-2 and B-3) (Closeout Report)*. Ponds A-1, A-2, and B-4 did not require any RFCA accelerated action for soil or sediment removal.

Confirmation results from the accelerated action associated with ponds B-1, B-2, and B-3 are contained in the Closeout Report. Note that the excavated areas were backfilled with clean soil and thus the confirmation sample locations are now well below the current sediment surface elevations. Excavation deeper than the backfill depth is not anticipated. Characterization results for the investigation of ponds A-1, A-2, and B-4 investigations are presented in the October 2005 *Data Summary Report for IHSS Group NE-1 (DSR)*.

Based on the information included in the *Closeout Report* and the *DSR* characterization information for the ponds in question, all surface and subsurface concentrations or activities were less than the RFCA wildlife refuge worker (WRW) soil action levels (ALs), except for one subsurface-sediment sample in pond B-4. This pond B-4 subsurface-sediment sample was 217.0 pCi/g at 3.0-3.9 feet below surface (WRW AL = 50 pCi/g).

The Ponds are located in the Upper Walnut Creek Exposure Unit, which is evaluated as part of the RI/FS *Appendix A, Comprehensive Risk Assessment*. The results of the CRA for this Exposure Unit are in Volume 7 of Appendix A. Benzo(a)pyrene was identified as the only contaminant of concern (COC) for surface soil/subsurface sediment in this exposure unit. No COCs were identified for subsurface soil. The calculated risk to the Wildlife Refuge Worker for the surface and subsurface exposure scenario for benzo(a)pyrene in the CRA is  $1 \times 10^{-6}$ .

Plutonium was not identified as a COC in the exposure unit because it was screened out in accordance with the CRA methodology, and thus does not pose a significant risk.

*3 - Resurvey any new surface established in subsurface soil, unless sufficient existing data is available to characterize the surface (or state that the excavated soil will be replaced and the original contours restored).*

When completed, the new surface elevations will be consistent with the final design drawings for the regrading work. Final elevations will be surveyed and the resulting data will be used to update the Central OU topography maps.

**Close Out of Contact Record:** This Contact Record will be closed out when the as-built drawings are completed for the construction work, the Central OU topography maps have been updated with the final elevations, and the two aforementioned monitoring locations are reestablished.

**Resolution:** Carl Spreng, CDPHE, approved the excavation work and impairment and replacement as necessary of the monitoring locations as described in this contact record.

**Contact Record Prepared by:** Rick DiSalvo

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**Distribution:**

Carl Spreng, CDPHE  
Scott Surovchak, DOE  
Linda Kaiser, Stoller  
Rocky Flats Contact Record File

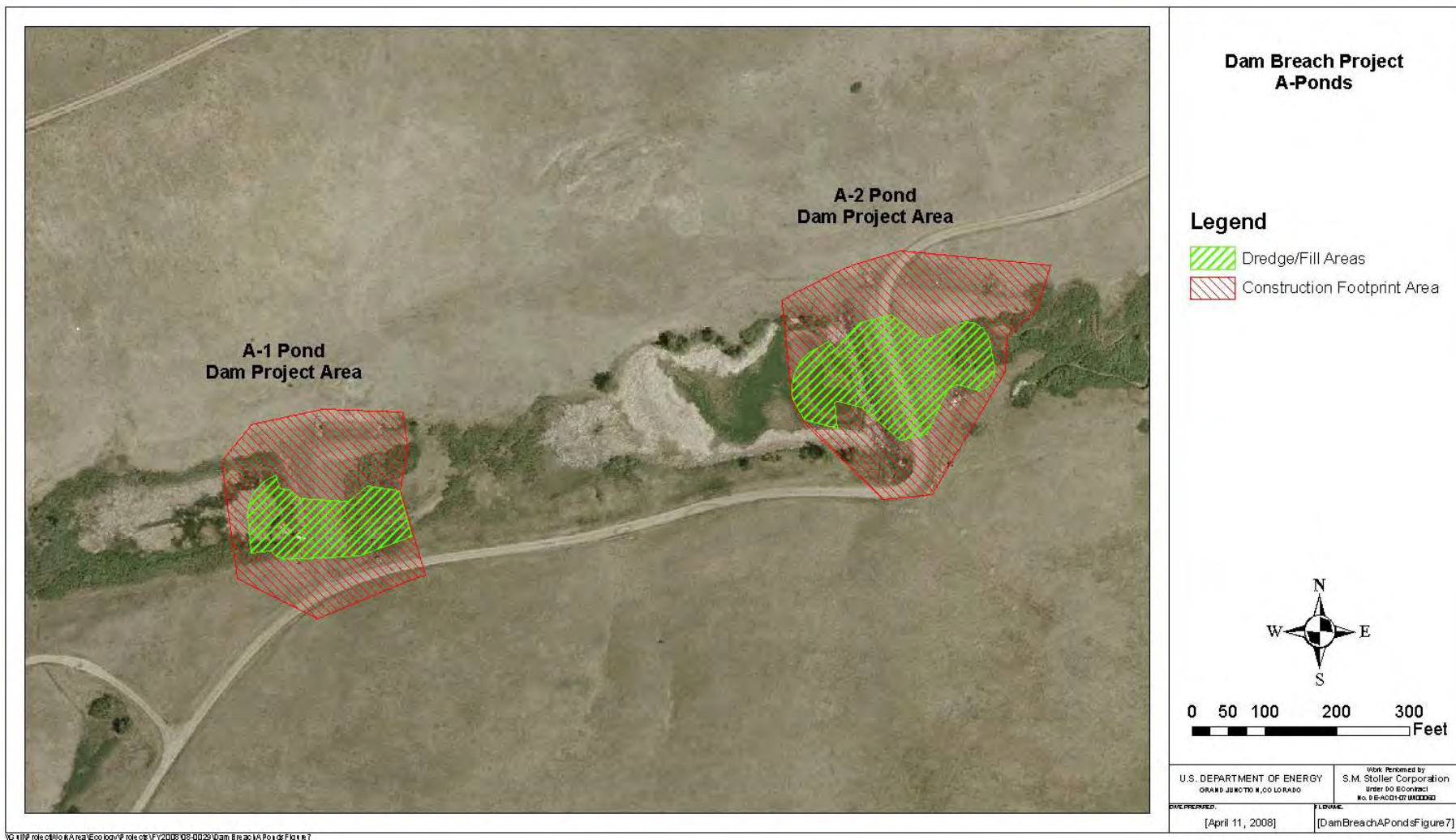
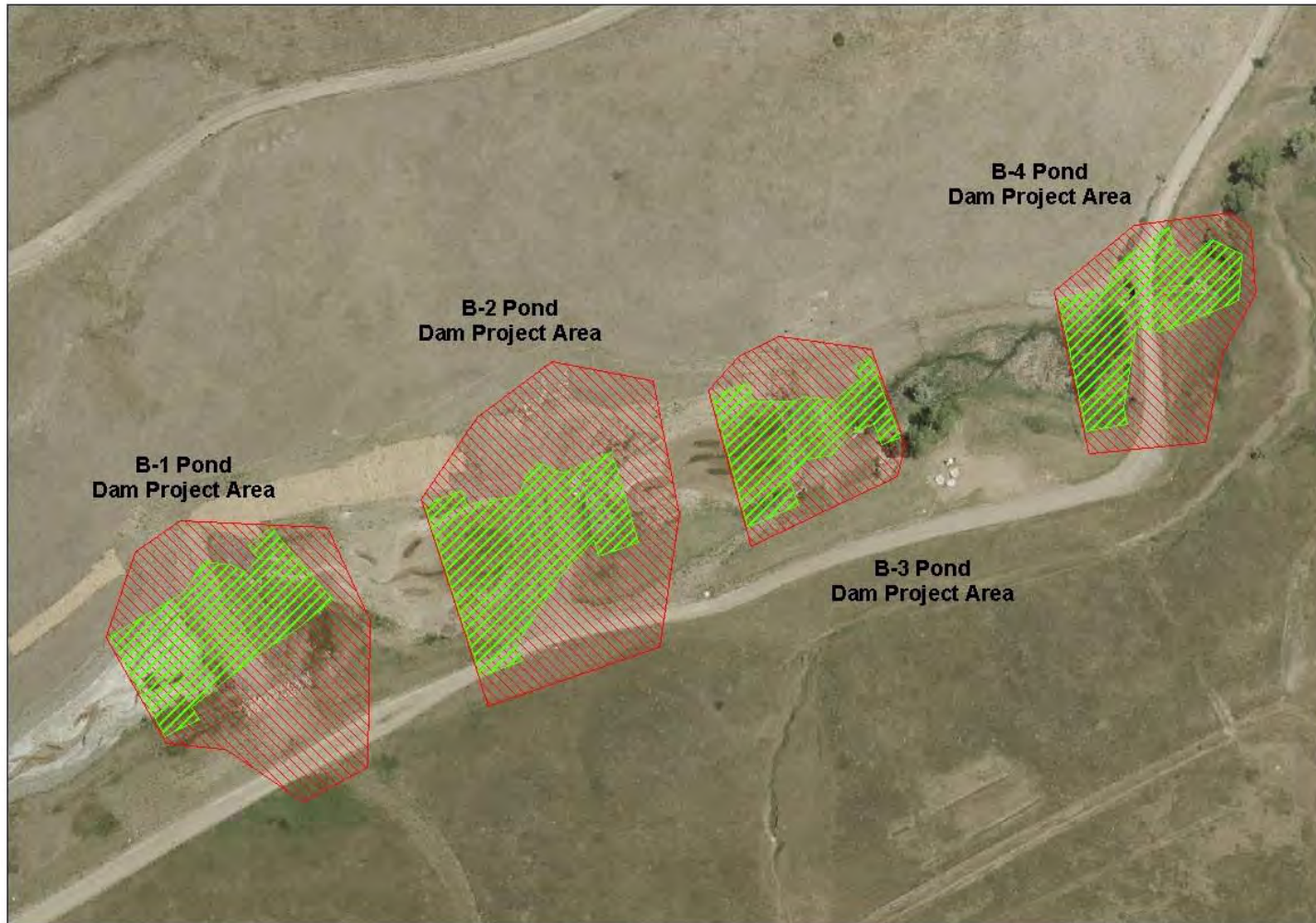




Figure 1. Dam Breach Project: A-Ponds Project Locations





## Dam Breach Project B-Ponds

### Legend

-  Dredge/Fill Areas
-  Construction Footprint Area



0 50 100 200 300  
Feet

U.S. DEPARTMENT OF ENERGY  
ORLANDO, FLORIDA

Work Performed by  
S.M. Stoller Corporation  
under SO 60-00-0000  
No. 00-00-000000

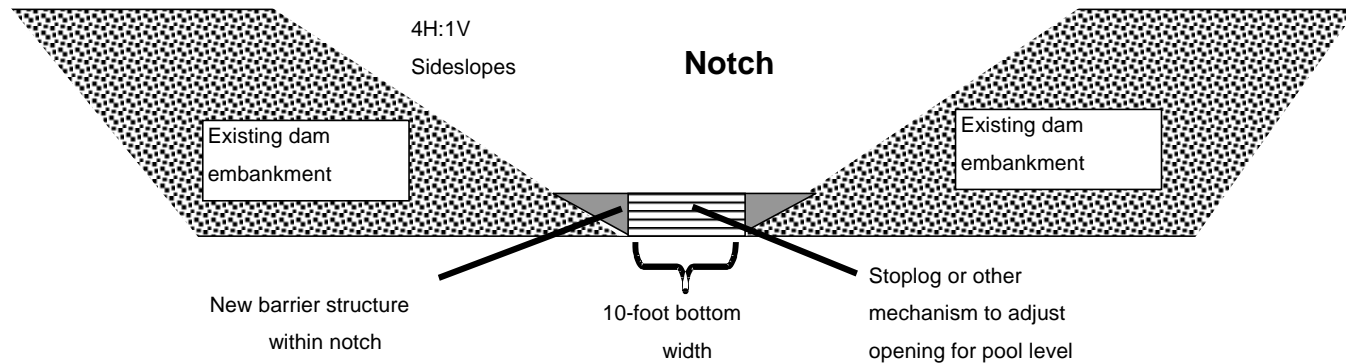
DATE PREPARED:  
[April 11, 2008]

FIGURE:  
[DamBreachBPondsFigure 8]

Figure 2. Dam Breach Project: B-Ponds Project Locations

### Typical Front View of Modified Dam

(not to scale)



**Note:** Configuration shown is a "maximum impact" conceptual design.

Actual design for dam modification may vary, depending on results of engineering.

Figure 3. Typical Front View of Modified Dam





Figure 4. Example of Notched Dam with Stoplog Structure and Grouted Riprap

### **Contact Record 2008-03**

## ROCKY FLATS SITE REGULATORY CONTACT RECORD

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**Purpose:** Exploratory excavations to greater than 3 feet below grade generally between the former Interceptor Trench Pump House and Solar Ponds Plume Treatment System

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**Contact Record Approval Date:**  
May 20, 2008

**Site Contact(s) / Affiliation(s):**  
Scott Surovchak, DOE; John Boylan, S.M. Stoller; Linda Kaiser, S.M. Stoller; Jody Nelson, S.M. Stoller; Rick DiSalvo, S.M. Stoller

**Regulatory Contact(s) / Affiliation(s):**  
Carl Spreng, CDPHE

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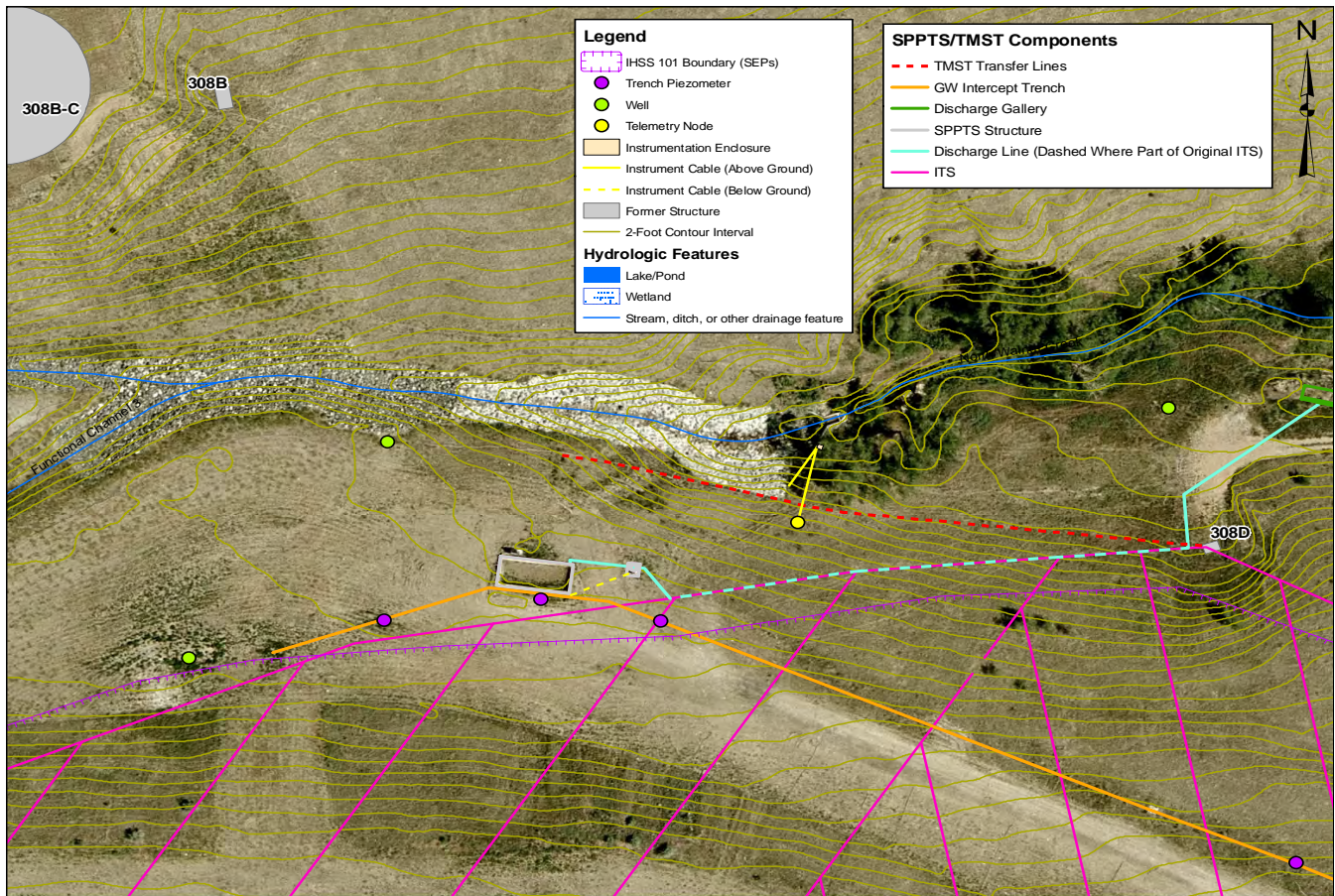
**Discussion:** The Solar Ponds Plume Treatment System (SPPTS) will be modified in the coming months. Part of this modification will include installing a groundwater collection sump near the former Interceptor Trench Pump House (ITPH) to collect contaminated groundwater that currently mixes with the treatment system effluent and issues at the Solar Ponds Plume Discharge Gallery, and routing this collected water up to the SPPTS for treatment. This water will be pumped to the SPPTS via buried lines. The area between the ITPH and the SPPTS is sensitive habitat (Preble's meadow jumping mouse). Installing these lines will require excavating a trench from the sump up to the SPPTS and burying the lines in the trench, thereby disturbing the habitat.

Two parallel lines are present in the subsurface near the ITPH. These lines were located during the exploratory excavations in spring 2007 (see *Contact Record 2007-02*) and appear to consist of HDPE pipe (non-perforated). Their purpose prior to site closure was to transfer water from the ITPH to the Temporary Modular Storage Tanks (TMSTs) and subsequently transfer the water from the tanks back through the ITPH into the Protected Area and finally to the evaporators within B-374 for treatment. Portions of these lines nearest the TMSTs and FC-3 have been removed, but the portion nearest the ITPH, extending to near the SPPTS, remains.

Engineering drawings that were generated before closure depict these lines as double-walled and show them running from the ITPH to the vicinity of the SPPTS before turning more northerly toward the TMSTs. They may be buried closer to the base of the hill (i.e., nearer surface water monitoring station SW093 than the SPPTS itself). Figure 1 shows the approximate location of the TMST transfer lines in relation to other features in the area. Regardless of whether the nearest portion is closer to the SPPTS or SW093, if these lines are in serviceable condition, they should be considered for use in the upcoming SPPTS modifications. Using them to transfer water from the new collection sump to the SPPTS could significantly reduce how much habitat is disrupted: the most sensitive portion of the habitat along the valley bottom, from the general vicinity of SW093 to the new sump, would not be directly impacted by the construction activities.



Figure 1. Approximate Location of TMST Transfer Line



These lines will be investigated by using a backhoe or similar equipment and utility-locating equipment as follows:

1. Form a pothole at the ITPH to locate the two MST transfer lines.
2. Sever the lines and send a tape/sounder up the lines (to the west) to allow them to be located along their subsurface extent.
3. Temporarily mark the locations of the lines along the surface.
4. Form a pothole where locating equipment indicates the lines either turn northward or end, and expose the lines.
5. Backfill the potholes, mark the locations and depths of the lines, apply erosion controls and revegetate as appropriate, and demobilize.

The potholing excavation involves actions prohibited by the institutional controls (ICs) incorporated in the Rocky Flats Legacy Management Agreement (RFLMA). The excavation work will exceed the 3-foot-depth limit prohibited by ICs (RFLMA, Attachment 2, Table 4, Control 2) and thus requires pre-approved procedures.

The objective of IC 2 regarding excavations with a depth that exceeds 3 feet is to maintain the current depth to subsurface contamination or contaminated structures. This IC also results in achieving

compliance with the CDPHE risk management policy of ensuring that residual risks to the site user are at or below  $1 \times 10^{-6}$ . As discussed further, below, the proposed work achieves the risk management policy goal.

The excavation targets described above may be deeper than 3 feet below ground surface, and it is expected that the excavations will need to be deeper in order to allow personnel to perform the utility locates and pressure tests. The excavations are not expected to be deeper than approximately 5 feet below ground surface. However, if the lines are longer than the tape/sounder, an intermediate pothole may be required to allow these tools to be sent up the balance of their useful reach.

The best management practices in the *Erosion Control Plan for Rocky Flats Property Central Operable Unit, DOE-LM/1497-2007* (July 2007) will also be implemented to provide erosion controls for the excavated materials so that run-on and runoff will be minimized.

CDPHE has requested that the following information be included in contact records for soil excavation:

*1 - Provide information about any remaining subsurface structures in the vicinity so that the minimum cover assumption won't be violated (or state that there are none if that is the case)-*

The exploratory excavation is in the vicinity of the former ITPH, known as building 308D. The building was removed as documented in the *Type 1 Facility Closeout Report for Buildings 308B and 308D* (September 22, 2003). The closeout report indicates that utilities were disconnected and capped three feet below grade.

*2 - Provide information about any former IHSSs/PACs or other known soil or groundwater contamination in the vicinity (or state that there is no known contamination)-*

The closeout report indicates that there is no contamination present in the remaining soils and that this area was not an IHSS. The *RI/FS Nature and Extent of Soil Contamination* figures do not indicate soil contamination in this area. Groundwater in the vicinity is impacted by the Solar Ponds Plume. Any groundwater that is encountered will be collected from the excavation, if necessary, to conduct the investigative work. The groundwater will be pumped from the excavation to the surface generally south of the excavation area to allow this water to seep back into the ground.

*3 - Resurvey any new surface established in subsurface soil, unless sufficient existing data is available to characterize the surface (or state that the excavated soil will be replaced and the original contours restored)*

All excavated soils will be returned to the excavation, and original contours will be restored.

**Closeout of Contact Record:** This contact record will be closed when the excavations are backfilled and when revegetation and erosion controls are completed.

**Resolution:** Carl Spreng, CDPHE, approved the potholing work as described in this contact record.

**Contact Record Prepared by:** John Boylan and Rick DiSalvo

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**Distribution:**

Carl Spreng, CDPHE  
Scott Surovchak, DOE  
Linda Kaiser, S.M. Stoller  
Rocky Flats Contact Record File

## **Contact Record 2008-04**

# ROCKY FLATS SITE REGULATORY CONTACT RECORD

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**Purpose:** Notification of Well Replacement and Well Identification Change

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**Contact Record Approval Date:** July 2, 2008

**Site Contact(s) / Affiliation(s):** Scott Surovchak, DOE; John Boylan, S. M. Stoller

**Regulatory Contact(s) / Affiliation(s):**  
Carl Spreng / CDPHE

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**Discussion:**

Sentinel well 45605 was installed on the north-facing hillside south of former Building 991. Subsequent movement of the slump on the hillside damaged the well. In late 2007, the well was sampled to meet fourth-quarter sampling requirements, and was then abandoned to make way for the regrading efforts at that slump. Regrading and revegetation was completed in November 2007.

As documented in Contact Record 2007-07, a replacement well was approved by CDPHE. In late March 2008, well 45605 was replaced. The new well is identified as Sentinel well 45608. The RFLMA (Attachment 2, Table 2 and Figure 1) references monitoring of the original well 45605. This reference must be modified to substitute well 45608 for abandoned well 45605.

**Resolution:**

This Contact Record shall serve as formal notification of the well number change. In the next proposed modification to RFLMA Attachment 2, references to well 45605 will be deleted and replaced with well 45608. Minor changes like this well number change will be accumulated and the RFLMA Attachment 2 will be modified to incorporate the accumulated minor changes at the same time.

DOE and S.M. Stoller staff discussed this approach with Carl Spreng, CDPHE during a meeting on May 6, 2008 and he approved this approach.

**Close Out of Contact Record:** This Contact Record will be closed out when the RFLMA Attachment 2 modification incorporating the well number change is approved.

**Contact Record Prepared by:** John Boylan

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**Distribution:**

Carl Spreng, CDPHE  
Scott Surovchak, DOE  
Linda Kaiser, Stoller  
Rocky Flats Contact Record  
File



## **Contact Record 2008-05**

# ROCKY FLATS SITE REGULATORY CONTACT RECORD

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**Purpose:** Boron and Uranium in Groundwater Downgradient of the Original Landfill

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**Contact Record Approval Date:** July 3, 2008

**Site Contact(s) / Affiliation(s):** Scott Surovchak, DOE; John Boylan, S.M. Stoller

**Regulatory Contact(s) / Affiliation(s):**  
Carl Spreng / CDPHE

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## **Discussion:**

Analysis of groundwater samples collected from the three RCRA monitoring wells downgradient of the Original Landfill (OLF) indicate statistically higher concentrations of boron (B) and, at one location, uranium (U) than is evident in upgradient groundwater. Per the RFLMA (Attachment 2, Figure 10), consultation is required in cases where concentrations of analytes of interest (i.e., listed in RFLMA Attachment 2, Table 1) are statistically higher in downgradient OLF RCRA wells than in upgradient OLF RCRA wells.

Concentrations of B in all three downgradient RCRA wells (80005, 80105, and 80205) are well under the applicable standard of 750 ug/L (RFLMA, Attachment 2, Table 1).

Concentrations of U in downgradient well 80205 are under the U threshold of 120 ug/L (RFLMA, Attachment 2, Figure 8). Insufficient data are available for trending using the Seasonal-Kendall trending method. Refer to the graph below for more information on relative concentrations.

Both of these conditions were recognized and reported in the Rocky Flats Site Annual Report of Site Surveillance and Maintenance Activities, Calendar Year 2006, and in the same report for calendar year 2007. In response to a recommendation made in the 2006 report as well as in the CERCLA Five-Year Review Report (2007), a sample was collected from well 80205 and analyzed using high-resolution methods to determine the extent to which the groundwater might be impacted by anthropogenic (man-made) U. Results indicated the sample contained 100% natural U.

Surface water downgradient of the OLF, as monitored at location GS59, shows no adverse impact from the OLF due to elevated concentrations of B or U in groundwater.

DOE, CDPHE and S.M. Stoller staff consulted regarding these monitoring results at a meeting on May 6, 2008.

## **Resolution:**

RCRA wells monitoring the OLF will continue to be monitored and the data will continue to be assessed statistically. The monitoring data will be included in RFLMA quarterly and annual surveillance and maintenance reports, and the assessment discussed in the RFLMA annual surveillance and maintenance reports in accordance with RFLMA,. If all scheduled samples are successfully collected (i.e., dry conditions do not prevent sampling), it is anticipated that RFLMA Contact Record 2008-05

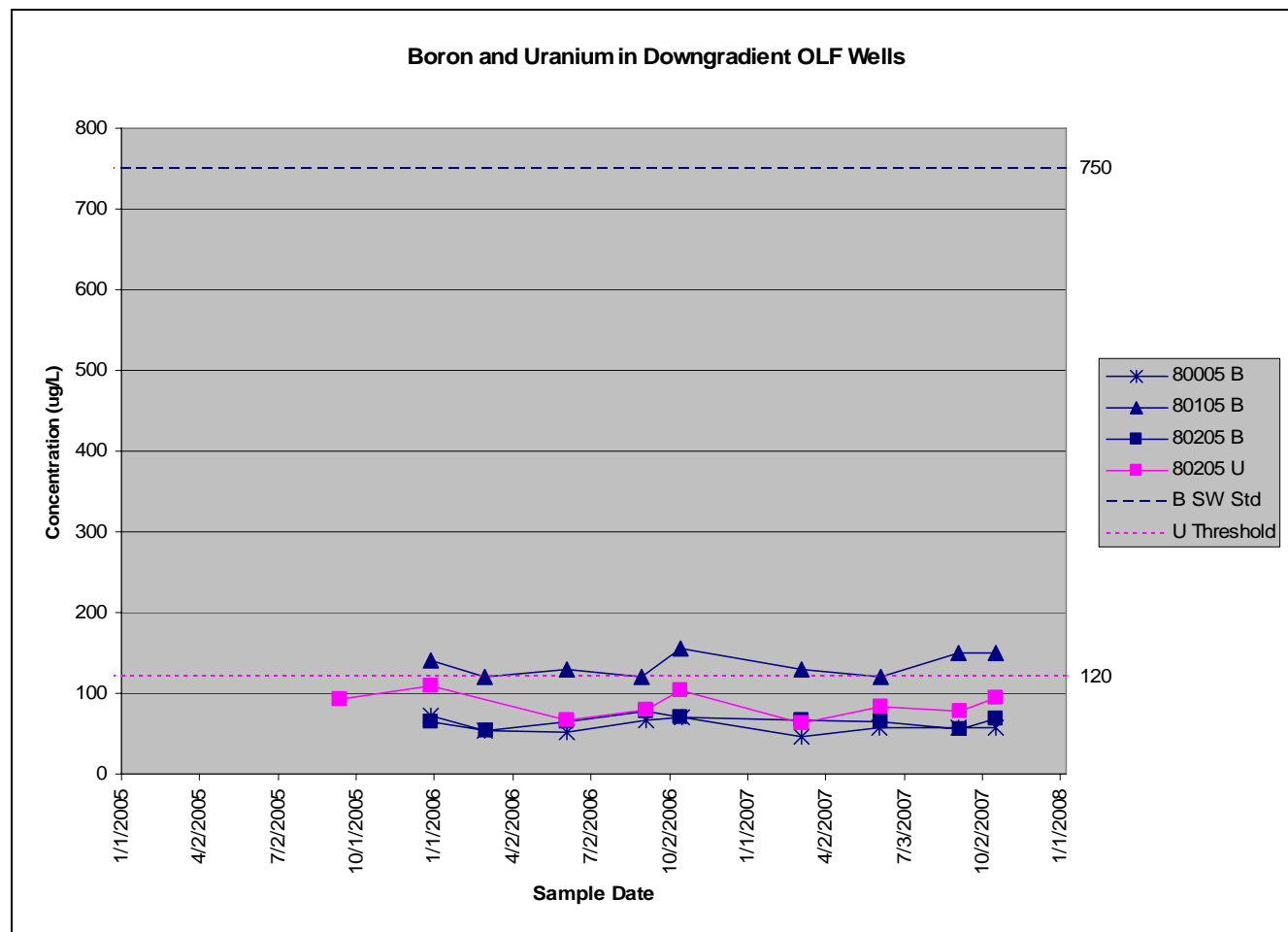
trend calculations will be feasible following collection of all scheduled quarterly samples in calendar year 2009. If increasing trends are indicated, additional consultation will be initiated. If the trends are indeterminate or decreasing, additional consultation will not be necessary.

**Close Out of Contact Record:** This Contact Record will be closed out when the trend calculations are completed and a determination of increasing, indeterminate, or decreasing trends is made. A new Contact Record will document any additional consultation required for a determined increasing trend.

**Contact Record Prepared by:** John Boylan

**Distribution:**

Carl Spreng, CDPHE  
Scott Surovchak, DOE  
Linda Kaiser, Stoller  
Rocky Flats Contact Record  
File



NOTES: B = boron, U = uranium. Numbers along the right side of the graph refer to the adjacent B surface water standard (SW Std in legend) or U threshold, also in units of ug/L.

**Contact Record 2008-06**

# ROCKY FLATS SITE

## REGULATORY CONTACT RECORD

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**Purpose:** Management of Intercepted Groundwater During SPPTS Repair or Maintenance Activities

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**Contact Record Approval Date:** July 3, 2008

**Site Contact(s) / Affiliation(s):** Scott Surovchak; DOE; John Boylan, S.M. Stoller; Rick DiSalvo, S.M. Stoller

**Regulatory Contact(s) / Affiliation(s):**  
Carl Spreng / CDPHE

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### **Discussion:**

The Solar Ponds Plume Treatment System (SPPTS) includes a groundwater intercept trench from which groundwater is pumped into cells for treatment. The Interceptor Trench System (ITS) is present in the subsurface generally southwest, south, and southeast of the SPPTS groundwater intercept trench. During periods in which the SPPTS is serviced (e.g., media replacement) or modified (as planned in late 2008), intercepted groundwater may need to be otherwise controlled. Previously, groundwater has been allowed to accumulate within the trench in such times. However, there may be instances in which an alternative method of controlling the water is needed, for example if groundwater levels are high or need to be kept lower in the trench.

DOE, CDPHE and S.M. Stoller staff consulted regarding this intercepted water management approach at a meeting on May 6, 2008.

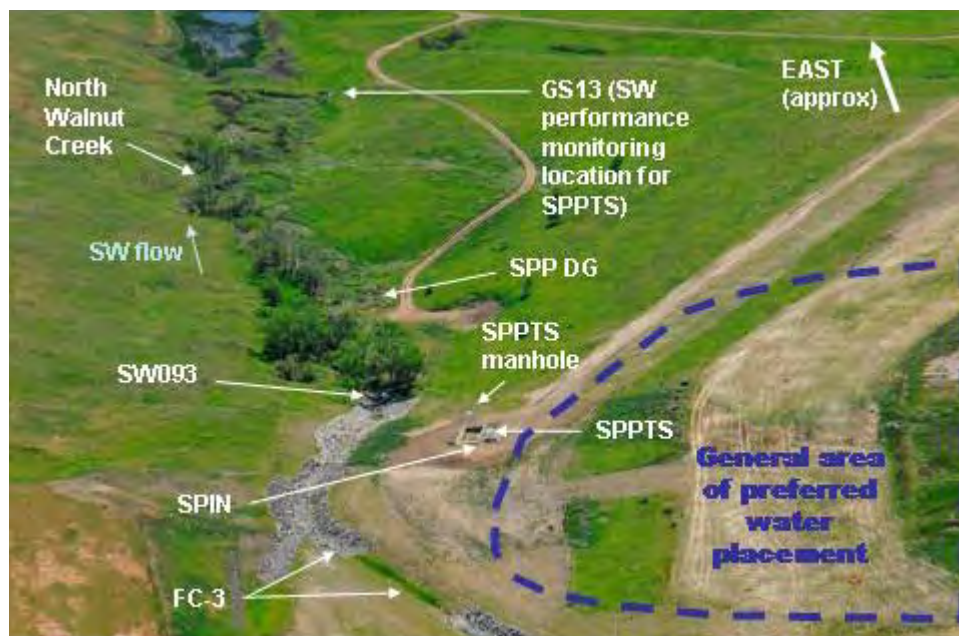
### **Resolution:**

As necessary to support SPPTS maintenance and repair activities, groundwater that is intercepted by the SPPTS intercept trench may be pumped to the ground surface in the area generally southwest and south of the treatment cells, including on the hillside as long as appropriate erosion controls are maintained and the water does not enter North Walnut Creek. Erosion controls will be employed in accordance with the *Erosion Control Plan for Rocky Flats Property Central Operable Unit*, DOE-LM/1497-2007, July 2007. Flow rates will be carefully controlled to minimize muddy conditions, and runoff of the water pumped to the ground surface shall not be allowed to reach FC-4/North Walnut Creek. The attached figure illustrates the general area suggested for placement of this water.

**Close Out of Contact Record:** This Contact Record will be closed out when DOE or CDPHE notify the other party that the intercepted water management approach described in this Contact Record is no longer necessary or is no longer approved.

**Distribution:**

Carl Spreng, CDPHE  
Scott Surovchak, DOE  
Linda Kaiser, Stoller  
Rocky Flats Contact Record  
File



NOTES: Photograph depicts features in the vicinity of the SPPTS and the general area where water will be placed. See text for discussion. SW = surface water; FC = Functional Channel; SPP DG = discharge gallery.

**Contact Record 2008-07**

## ROCKY FLATS SITE REGULATORY CONTACT RECORD

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**Purpose:** Path Forward for Original Landfill (OLF) Seep 7 Drain Extension, Berm Maintenance and Repair, Perimeter Channel Slope Cut and Fill, and Modification of the OLF Monitoring and Maintenance Plan (M&M Plan)

**Contact Record Approval Date:** September 2, 2008

**Site Contact(s) / Affiliation(s):** Scott Surovchak, DOE; Linda Kaiser, S.M. Stoller; John Boylan, S.M. Stoller; Rick DiSalvo, S.M. Stoller

**Regulatory Contact(s) / Affiliation(s):** Carl Spreng, CDPHE; Larry Bruskin, CDPHE; Vera Moritz, EPA

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**Discussion:** Conditions that warranted repair and that triggered further investigation in accordance with the OLF M&M Plan were found at the OLF during the 2007 inspections. Inspection details are included in the Rocky Flats Legacy Management Agreement (RFLMA) quarterly and annual reports for 2007. These conditions involved localized slumping and settling of the OLF cover, seeps observed to daylight intermittently on the cover, and the development of a continuous seep at the eastern toe of the buttress (identified as Seep 8). In addition, ponding in lengths of the diversion berm channels from precipitation and snowmelt runoff were observed, and a topographic survey showed that portions of the diversion berms did not meet the minimum M&M Plan-specified 2-foot height.

An action plan for the Phase 1 (near-term) repair, Phase 2 geotechnical investigation, and Phase 3 design and construction for long-term repair was approved by the Colorado Department of Public Health and Environment (CDPHE) on July 16, 2007. Phase 1 repairs to address localized differential settlement, slumping, and surface cracks were made in 2007 by filling, grading, and compacting.

CDPHE approved the Phase 2 *Rocky Flats Original Landfill Geotechnical Investigation/Engineering Work Plan* (Work Plan) on November 30, 2007. The purpose of the work plan is to determine subsurface conditions and the possible causes of observed localized slumping and settling of the OLF cover, and to develop feasible alternatives for mitigating the localized areas of slope instability. The investigation also considered the possible impacts of the seeps and the maintenance of berm heights and channel slopes to ensure adequate water run-on and runoff controls.

Investigation field work for Phase 2 began in December 2007 and was completed in April 2008. Work began with a geophysical survey to help determine the thickness and extent of waste placement and to aid in positioning investigative test pits and boreholes. Next, eight test pits, approximately 20 feet long and 11 to 13 feet deep, and a ninth test pit, approximately 20 feet long and 3 feet deep, were excavated. Seven boreholes, approximately 28 to 39 feet deep (into bedrock), were drilled to obtain continuous core samples and to install inclinometers to accurately measure movement. Field observations by a geologist were made throughout the work, and laboratory analyses were conducted to determine mechanical properties of the test pit and borehole samples. Figure 1 shows the location of the test pits and inclinometer boreholes in relation to the observed conditions being investigated.

The *Rocky Flats Original Landfill Geotechnical Investigation Report* (Geotech Report) (June 2008) describes the Phase 2 work performed and concludes that a clay layer containing organic materials at



or near the bedrock contact appears to be a weak interface area. As described in the Geotech Report, modeling predicts small-scale instability due to percolating moisture that lubricates this weak interval. The OLF buttress is providing stability as intended, and there is no large-scale instability predicted; therefore, the observed conditions do not appear to indicate a need for urgent or major responses.

Alternatives to address the instability caused by a weak layer condition include increasing the soil strength by soil grouting or dynamic soil compaction. Steep side slopes in the perimeter channels that are outside of the areas supported by the buttress can also be regraded to improve side slope stability in some locations. Alternatives to address moisture include improving the drainage of surface water and reducing standing water. More robust approaches that involve considerable excavation and construction include slurry walls and drainage systems.

On May 22 and June 19, 2008, the RFLMA parties consulted regarding the outcome of the investigation. The Geotech Report was submitted to CDPHE on June 5, 2008. Based on consideration of the localized nature of the instability and continued monitoring, it was agreed that cost-effective construction approaches that minimize intrusion into the OLF and the continued implementation of OLF M&M Plan maintenance steps should be implemented. The parties agreed that alternatives for bringing berm heights up to the OLF M&M Plan minimum of 2 feet should be reconsidered because the 2-foot height is difficult to maintain with the cobbly soils specified for the cover (Rocky Flats Alluvium), and the berms have flattened out or settled since construction. DOE developed further information and modeling regarding the berm heights necessary to contain the runoff water from a 100-year 24-hour storm event. CDPHE notified DOE on June 24, 2008 that the Geotech Report, having met the criteria agreed to in the Work Plan for the investigation, was acceptable.

CDPHE and DOE met again on July 29, 2008, to review the outcome of the berm height analysis, discuss preliminary construction designs, and finalize the path forward for completion of the Phase 3 designs and construction. The berm height analysis was based on a high-resolution OLF topographic survey completed in late June 2008 and application of the HEC-RAZ modeling program used for the initial OLF closure design. Conclusions from this survey and the berm height analysis are discussed below within the text, focusing on the individual actions to be taken.

Based on consultation, the following actions will be taken by DOE. Some of these actions will require that conforming modifications be made to the OLF M&M Plan, and these are also noted.

1. Berm height – Minimum heights will be based on smaller subdrainage areas calculated for 200-foot lengths of each berm, and the minimum calculated height to convey the 1,000-year, 24-hour event. This provides freeboard capacity to convey the 100-year, 24-hour event, which is a design criterion for the berms. Approximately 24 percent of the total berm lengths will need several inches of soil (after compaction) added to the top to meet this minimum height (which will represent the required berm height). This soil will be added, compacted, and covered with erosion matting. This approach will minimize the impact to established vegetation because it will not require wholesale regrading or use of heavy construction equipment. An “as built” topographic survey will be completed after this work to serve as a baseline for continued observation of berms for future maintenance.

The following points were agreed to:

- Inspection of berm heights will be based on an annual topographic survey, and subsequent repairs will be made, if necessary, to maintain required minimum heights.

- Routine inspection walkdowns (which the OLF M&M Plan currently mandates to be conducted monthly) will focus on observable signs of slumping, settling, cracking, and erosion, and repairs to any of these observed conditions will be made as part of routine maintenance.
- Major storm events that could possibly promote significant erosion or otherwise damage the berms may also be assessed by topographic survey, if appropriate, and repairs will be made, if necessary, to maintain required minimum heights.

The OLF M&M Plan will be modified to incorporate the subdrainage areas used to calculate the minimum berm heights and to describe the topographic survey method and criteria and other inspection requirements.

2. Berm channels – DOE will continue to implement the OLF M&M Plan maintenance approach and regrade as needed, based on observations of significant ponding, to promote drainage to the perimeter channels. The annual topographic survey will also be used to address any areas which indicate that slopes are conducive to ponding.

The following points were agreed to:

- Minor ponding (short lengths, narrow, and shallow) is expected over time, and observations during precipitation events will be made from time to time and noted on the OLF monthly inspection form.
- Inspections are also required after significant precipitation per the OLF M&M Plan and RFLMA.
- Steps will be considered to mitigate snow and ice buildup during winter months, such as the use of snow fencing to minimize drifts.
- Regrading involves filling in observed low spots, smoothing or reducing high spots, and removing blockages that may have resulted from vegetation buildup.
- DOE will maintain an average 2 percent minimum drainage slope over the length of each diversion berm (could be verified using annual topographic survey).
- If channel regrading requires trenching of more than 6 inches, DOE will consult with CDPHE regarding possible impacts to the soil cover.

The OLF M&M Plan will be modified, as necessary, to clarify the routine maintenance for these items.

3. Seep 7 drain extension – An extension to the current drain will be installed upgradient within the 2-foot cover depth in the general area where this seep has expressed (“day lighted”) on the surface and resulted in saturation of surface soil. This will be carefully constructed in the cover layer so as not to intrude into the underlying soil/waste. At its southern end, the excavation will extend below the cover material for a short distance to a depth of 4 to 5 feet to tie into the existing drain. Figure 2 shows the conceptual design for the drain extension.

The OLF M&M Plan will be modified to document the drain extension, including updating the drawings to show the location.

4. Inclinometers – Movement will be monitored on the same frequency as the settlement monuments. It was agreed that surveys of consolidation monitors installed as part of the Phase 1 work (3-foot pieces of steel rod driven into the soil cover to monitor movement) will be discontinued, and these monitors will be removed. Settlement monument E, located between Berms 1 and 2, was not installed pending completion of investigative field work and construction decisions. This monument will be installed.

The OLF M&M Plan will be modified to incorporate the inclinometer locations and monitoring requirements, including updating the drawings to show the locations.

5. West perimeter channel side slope stability – An area generally between the western ends of Berms 1 and 3 (see Figure 1) will be regraded by cutting and filling to lessen the OLF side slope and improve stability. The perimeter channels' depth and size are much greater than the design drain capacity requires. The regrading plan will be based on cost-effective use of soils available in the areas adjacent to the slope areas being adjusted. Regrading will also be considered at other locations in the east and west perimeter channels to reduce side slopes and improve cover and channel stability. The permanent erosion control mat will be replaced where necessary.

The OLF M&M Plan will be modified to document the regraded channels, including updating the drawings to show the new contours, as necessary.

6. Other repairs and maintenance – Localized slumping or differential settling will be evaluated and generally can be addressed through routine repairs, such as adding soil and regrading, crack filling, and so forth, as currently specified in the OLF M&M Plan. Woody plants may be left where they appear on the buttress, but will still need to be removed on the OLF cover. The OLF M&M Plan modification will clarify the woody plant removal requirement accordingly.

7. OLF M&M Plan – Anticipated modifications to the OLF M&M Plan to implement the path forward are noted in the foregoing action items.

The OLF M&M Plan was written before the Corrective Action Decision/Record of Decision (CAD/ROD) was approved in September 2006 and before RFLMA (generated to implement the CAD/ROD) was drafted and became effective in March 2007. The OLF M&M Plan is incorporated by reference as an enforceable requirement of RFLMA (see RFLMA Attachment 2, Section 5.3.1, and Tables 1–3). RFLMA terminated and supersedes the Rocky Flats Cleanup Agreement (RFCA), and the OLF M&M Plan references RFCA in certain sections.

Thus, revisions to the OLF M&M Plan will include updates to the document to reflect the implementation of the remedy under RFLMA, similar to what was done for the Present Landfill M&M Plan pursuant to Contact Record 2007-08.

Pursuant to RFLMA, paragraph 66, DOE and CDPHE do not consider these items to constitute a significant change from existing requirements of RFLMA, and this contact record shall be used to provide public notice of modifications to the OLF M&M Plan. Also, CDPHE may approve modifications to RFLMA attachments pursuant to RFLMA, paragraph 65.

The groundwater and surface water monitoring plans in the OLF M&M Plan reference RFCA and the RFCA Integrated Monitoring Plan. These have been superseded by RFLMA. Therefore, the OLF M&M Plan revision will reflect the RFLMA requirements, which include the following RFLMA attachment tables and figures:

- Table 1, Surface Water Standards;
- Table 2, Water Monitoring Locations and Sampling Criteria;
- Table 3, Present and Original Landfill Inspection and Maintenance Requirements; and
- Figure 10, RCRA Wells.

Surface water standards may change from time to time, based upon regulatory actions, and RFLMA Attachment 2, Table 1, will be updated periodically to reflect these changes. Since the OLF M&M Plan will be revised to defer to the RFLMA analyte list, no changes to the OLF M&M Plan will be required if surface water standards change in the future. Currently, there are no changes needed for RFLMA Attachment 2, Table 1.

**Resolution:** The final design of the Seep 7 drain extension will be submitted to CDPHE for approval. Construction of the Seep 7 drain extension will take place after CDPHE approval.

The minimum berm height specification drawings based on the June 2008 topographical survey will be submitted to CDPHE for approval. Maintenance and repairs to the berm channels and berm heights may be commenced prior to CDPHE's approval of the drawings, and DOE will complete the work based on the CDPHE-approved minimum berm height.

The final design of the west perimeter channel will be submitted to CDPHE for approval. Construction work will commence after CDPHE's approval.

The OLF inspection and monitoring criteria discussed in this contact record shall be incorporated in a modification to the OLF M&M Plan; RFLMA, Attachment 2, Table 3, will also be modified accordingly. The modifications shall be submitted to CDPHE for approval.

**Closeout of Contact Record:** This contact record will be closed when:

- Maintenance, repairs, and construction work, including an "as built" topographical survey after adding soil to achieve minimum berm height requirements, are completed as described in this contact record;
- Modified RFLMA, Attachment 2, Table 3, is approved by CDPHE and posted to the DOE website;
- Notification of the availability of the modification is made by DOE in accordance with RFLMA, Appendix 2, "Public Involvement Plan";
- The modified OLF M&M Plan is approved by CDPHE and posted to the DOE website; and
- Notification of the availability of the modification is made by DOE in accordance with RFLMA, Appendix 2, "Public Involvement Plan."

**Distribution:**

Carl Spreng, CDPHE

Scott Surovchak, DOE

Linda Kaiser, Stoller

Rocky Flats Contact Record

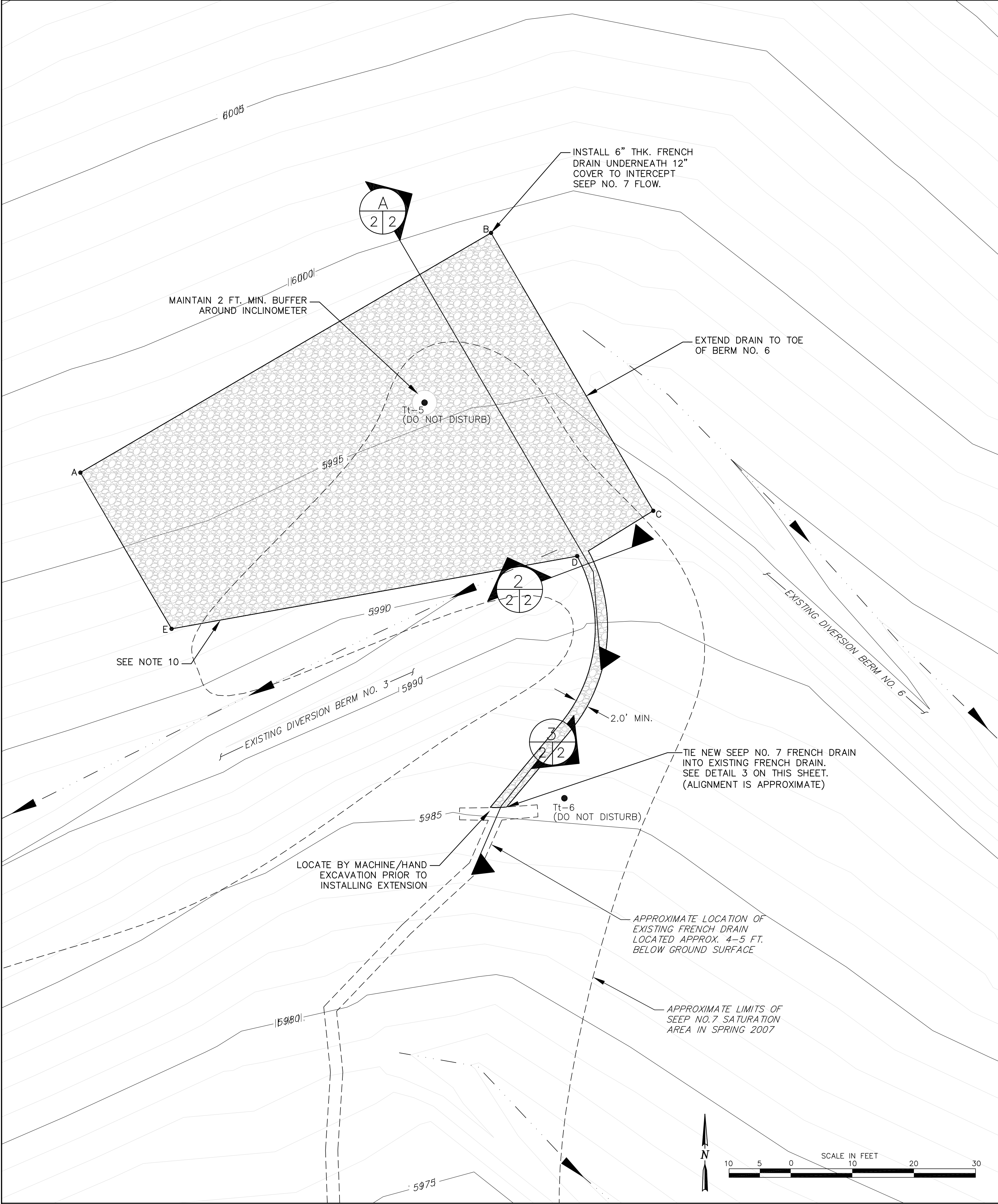
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Figure 1. Location of the Test Pits and Inclinator Boreholes and Observed Conditions at the OLF







- LEGEND:
- - - - - DITCH/CHANNEL/CREEK
  - - - - - EXTENT OF SATURATED SOIL
  - - - - - ROAD
  - - - - - CONTOURS
  - Tt-5 • INCLINOMETER LOCATION

1  
2 2 SEEP NO. 7 PLAN

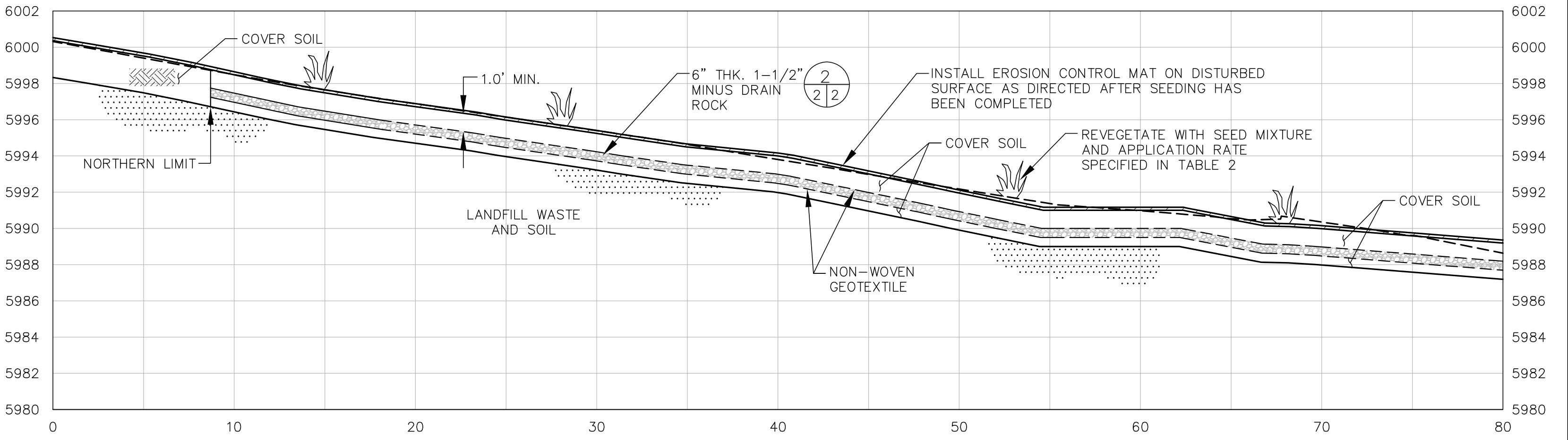


TABLE 1

POINT ID	NORTHING	EASTING
A	747769.53	2081511.74
B	747808.43	2081578.39
C	747763.33	2081604.71
D	747755.97	2081592.37
E	747744.17	2081526.54

TABLE 2

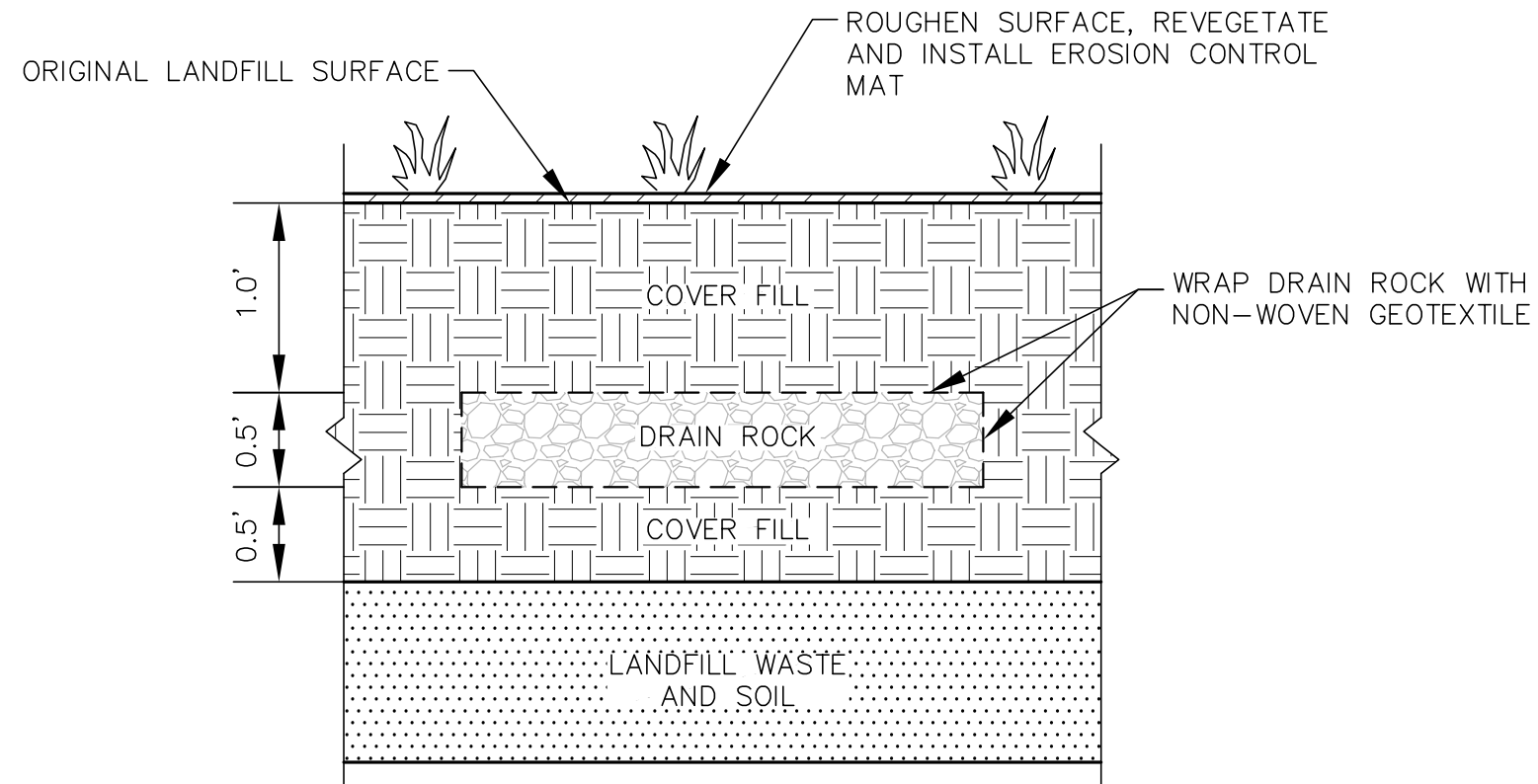
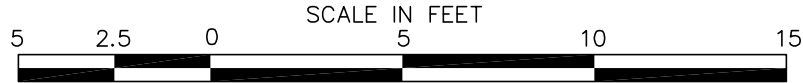
SPECIES	COMMON NAME	LBS./ACRE (PLS)
GRAMINOLDS		
AGROPYRON DASYSTACHYUM	THICKSPIKE WHEATGRASS	0.73
AGROPYRON SMITHII	WESTERN WHEATGRASS	4.17
AGROPYRON TRACHYCAULUM	SLENDER WHEATGRASS	2.72
BOUTELOUA CURTIPENDULA	SIDE-OATS GRAMA	1.49
BOUTELOUA GRACILIS	BLUE GRAMA	0.74
BUCHLOE DACTYLOIDES	BUFALO GRASS	4.84
STIPA VIRIDULA	GREEN NEEDLE GRASS	1.21
TOTAL		15.90

- THIS POUNDS PER ACRE ASSUMES DRILL-SEEDING IS USED. IF THE SEED IS TO BE BROADCAST, THE APPLICATION RATES ARE TO BE DOUBLED.
- PLS - PURE LIVE SEED. BE SURE TO SPECIFY TO THE SEED DEALER WHEN ORDERING.
- THE SEED IS TO BE CERTIFIED WEED FREE.

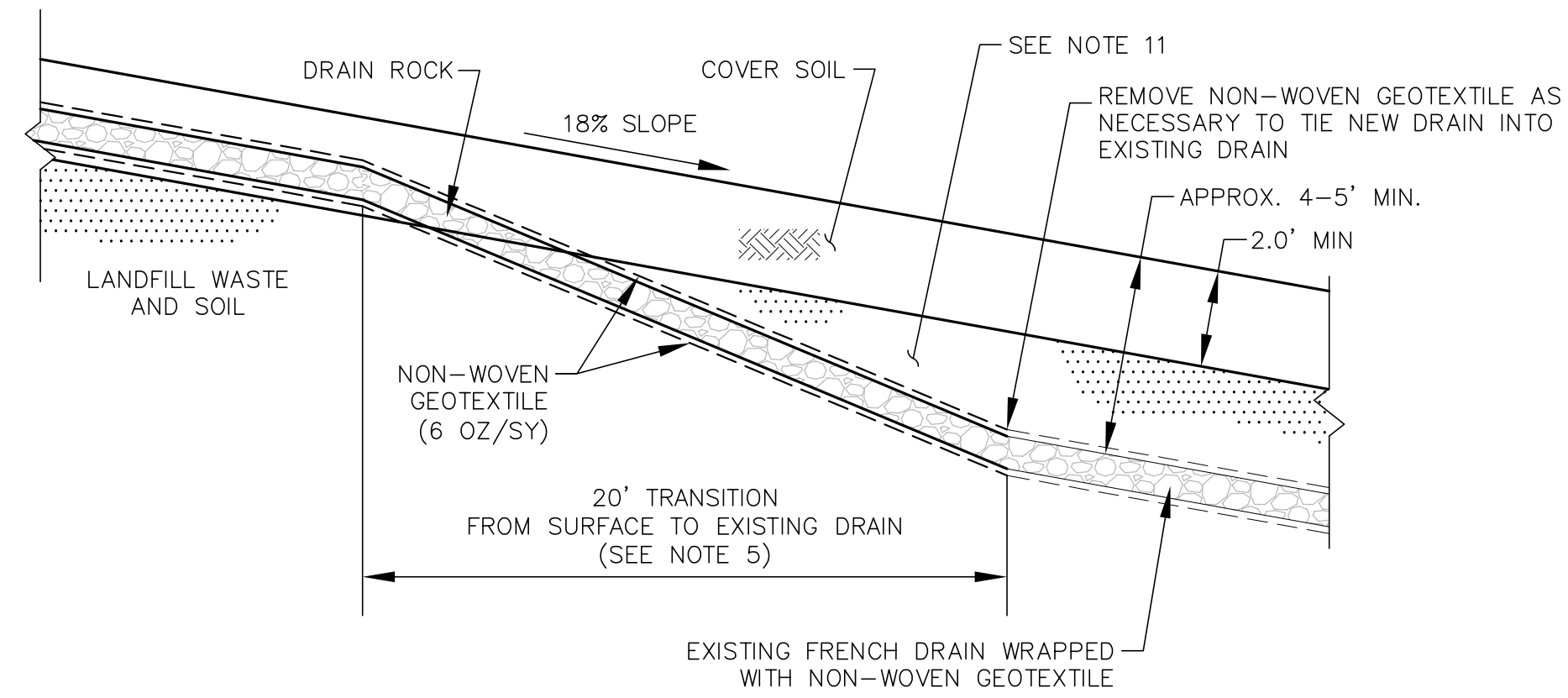
NOTES:

- GEOTEXTILE FOR USE IN THE DRAIN EXTENSION SHALL BE A NON-WOVEN POLYESTER OR POLYPROPYLENE MATERIAL HAVING A MINIMUM WEIGHT OF SIX OUNCES PER SQUARE YARD. (MIRAFI® 160N OR APPROVED EQUAL).
- DRAIN ROCK (EST. 63 CY) SHALL BE A POORLY-SORTED CLEAN GRAVEL, HAVING A MAXIMUM PARTICLE SIZE OF 1 1/2" AND NOT MORE THAN FIVE PERCENT, BY WEIGHT, OF THE MATERIAL PASSING THE NO. 40 SIEVE.
- DO NOT DISTURB INCLINOMETERS. MAINTAIN 2 FT. BUFFER AWAY FROM INCLINOMETER CASING.
- ROUGHEN SURFACE PRIOR TO SEED APPLICATION. AFTER SEEDING, INSTALL EROSION CONTROL MAT PER MANUFACTURER'S SPECIFICATIONS.
- FOLLOW CONTRACTOR HEALTH AND SAFETY PROCEDURES WHEN EXCAVATING INTO LANDFILL WASTE.
- EROSION CONTROL MAT SHALL BE A GREENFIX AMERICA CF072B OR NORTH AMERICAN GREEN C125BN. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
- NO COMPACTION IS REQUIRED FOR COVER SOIL. MATERIAL PLACED WITH MINIMAL PASSES OF EQUIPMENT USED FOR BACKFILLING.
- FOR DRAIN TRANSITION TO EXISTING FRENCH DRAIN, BACKFILL LANDFILL WASTE IN MAX. 12-INCH LIFTS AND COMPACT AROUND THE DRAIN WITH A JUMPING JACK OR APPROVED EQUIVALENT.
- OVERLAP EDGED OF NON-WOVEN GEOTEXTILE A MINIMUM OF TWO FEET OR SEW SEAMS TOGETHER WITH MANUFACTURER APPROVED METHOD TO COMPLETELY WRAP DRAIN ROCK.
- THE SLOPE BETWEEN POINT D AND E SHALL BE A MINIMUM 2.0% TO PREVENT PONDING WITHIN THE DRAIN ROCK.
- SUBCONTRACTOR TO NOTIFY CONTRACTOR PRIOR TO EXCAVATING INTO POTENTIAL LANDFILL WASTE IN ORDER FOR CONTRACTOR TO MONITOR EXCAVATIONS.

A  
2 2 SECTION



2  
2 2 SEEP NO. 7 DRAIN-DETAIL  
NOT TO SCALE



3  
2 2 SEEP NO. 7 TIE-IN DETAIL  
NOT TO SCALE

REVISION NO.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	PROJECT A/E	APPROVAL
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO						
PROJECT LOCATION ROCKY FLATS SITE GOLDEN, COLORADO			Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AM01-07LM00060 ORIGINAL LANDFILL SEEP NO. 7 DRAIN EXTENSION			
REFERENCE Tetra Tech			SEEP #7 - PLAN AND SECTION			
APPROVALS DRAWN BY: T. BOEHLER 07/30/08 ENGINEER: J. KIENHOLZ 07/30/08 PROJECT ENGINEER: Jim Kienholz 08/12/08 APPROVED BY: D. NORDEEN 08/12/08 PROJECT MANAGER: L. KAISER 08/12/08 DOE CONCURRENCE (SEE RECORD) 08/12/08			PROJECT NO. LTS-111-0056-07-001B DRAWING NO. S03200-R00-C01-D+ SHT. 3 OF 3 Page G-43			



**Contact Record 2008-08**



## ROCKY FLATS SITE REGULATORY CONTACT RECORD

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**Purpose:** Construction of collection sump for SPPTS

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**Contact Record Approval Date:** September 8, 2008

**Site Contact(s) / Affiliation(s):**

Scott Surovchak / DOE; Linda Kaiser / Stoller; Rick DiSalvo / Stoller; John Boylan / Stoller

**Regulatory Contact(s) / Affiliation(s):**

Carl Spreng / CDPHE

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**Discussion:** The Solar Ponds Plume Treatment System (SPPTS) includes a groundwater intercept trench from which groundwater is pumped into cells for treatment. Remnants of the upgradient (generally south and southwest) portions of the Interceptor Trench System (ITS) in the vicinity of the former Solar Evaporation Ponds continue to collect contaminated groundwater and feed it to the SPPTS groundwater intercept trench. Remnants of the ITS are also present to the side and downgradient (generally east and northeast) of the SPPTS intercept trench; water collected by this portion of the ITS is not treated by the system. Instead, this contaminated groundwater currently mixes with the (treated) SPPTS effluent and issues at the Solar Ponds Plume Discharge Gallery (DG).

Nitrate concentrations in surface water downstream of the DG are below the Temporary Modification currently in place through 2009 – 100 mg/L nitrate as N – but are above the underlying standard of 10 mg/L as N. DOE is planning to install a collection sump to collect the water from the side and downgradient ITS remnants, and to transfer that collected water up to the existing SPPTS treatment cell for treatment with the goal of reducing the nitrate concentrations at the DG and thus reduce nitrate loading to the creek.

Included in this work will be the installation of the necessary plumbing, flow measurement, pump, and electrical power (solar) to support the proper operation and maintenance of the sump. Figure 1 is a conceptual drawing showing the locations of the main components of the collection sump and transfer piping. Final construction drawings have been submitted to CDPHE for approval.

Pursuant to RFLMA paragraph 66, DOE and CDPHE do not consider addition of the collection sump and transfer of collected water to the treatment cell to constitute a significant change from existing requirements of RFLMA, and this Contact Record shall be used to provide public notice of these modifications to the SPPTS.

This design is the result of investigations of the ITS remnants and abandoned piping in the hillside area east of the SPPTS, which are discussed in Contact Records 2007-03 and 2008-03.

This work will entail excavation to below three feet below ground surface (3 ft. bgs). The maximum excavation depths will be approximately 15 to 18 ft. bgs. The construction involves actions prohibited by the institutional controls (ICs) incorporated in the Rocky Flats Legacy Management Agreement

(RFLMA). The excavation work will exceed the 3-foot-depth limit prohibited by ICs (RFLMA, Attachment 2, Table 4, Control 2) and thus requires pre-approved procedures.

The objective of IC 2 regarding excavations with a depth that exceeds 3 feet is to maintain the current depth to subsurface contamination or contaminated structures. This IC also results in achieving compliance with the CDPHE risk management policy of ensuring that residual risks to the site user are at or below  $1 \times 10^{-6}$ . As discussed further, below, the proposed work achieves the risk management policy goal.

The location of the project area is predominantly within Preble's Meadow Jumping Mouse (Preble's) habitat. The Preble's is a federally-listed threatened species under the Endangered Species Act. As a result, special controls are required to minimize disruption of the habitat.

Excavation will be reduced to the extent this is feasible. For example, sections of pre-existing lines in the area that had been used to transfer water from the Interceptor Trench Pump House (ITPH) to the Temporary Modular Storage Tanks (see Contact Record 2008-03) will be re-used for transfer of collected water to the SPPTS and discharge of effluent from the SPPTS. This will reduce both the size of the disturbed area and the volume of materials and supplies consumed for this project.

A biological opinion (BO) for the project was provided by the US Fish and Wildlife Service (USFWS) on September 5, 2008; the conclusion of this document is that "the proposed action is not likely to destroy or adversely modify designated critical habitat for Preble's", a federally-listed threatened species under the Endangered Species Act. Even so, on p. 5 the BO stipulates several "specific conservation measures" to be taken during the performance of this project, as excerpted below:

- Erosion controls will be installed prior to initiation of the project.
- Construction limits will be delineated with t-posts and rope or orange construction fencing.
- All disturbed areas will be revegetated following guidance on Appendix A of the PBA Part II.
- Post-project completion erosion controls will be installed according to guidance in the Erosion Control Plan.
- Disturbance footprints will be identified and tracked in the Preble's mitigation debit/credit tracking sheet.
- Mitigation for impacts from the upgrade project will consist of revegetation of project disturbances in situ; any additional needed mitigation will come from either DOE's State Land Board section 16 conservation easement, or from additional Preble's mouse habitat creation in the reconfigured drainages of the former Industrial Area at the site.

Each of these measures, as well as best management practices (such as minimizing vehicular traffic into and out of the area), will be implemented to reduce the degree to which the area is disturbed, and to accelerate its recovery following the completion of construction activities.

In addition to meeting the BO requirements, the best management practices in the *Erosion Control Plan for Rocky Flats Property Central Operable Unit, DOE-LM/1497-2007* (July 2007) will also be implemented to provide erosion controls for the excavated materials so that run-on and runoff will be minimized.

CDPHE has requested that the following information be included in contact records for soil excavation:

*1 - Provide information about any remaining subsurface structures in the vicinity so that the minimum cover assumption won't be violated (or state that there are none if that is the case)-*

The sump excavation is in the vicinity of the former ITPH, also known as building 308D. The building was removed as documented in the *Type 1 Facility Closeout Report for Buildings 308B and 308D* (September 22, 2003). The closeout report indicates that utilities were disconnected and capped three feet below grade.

*2 - Provide information about any former IHSSs/PACs or other known soil or groundwater contamination in the vicinity (or state that there is no known contamination)-*

The closeout report indicates that there is no contamination present in the remaining soils and that this area was not an IHSS. The *RI/FS Nature and Extent of Soil Contamination* figures do not indicate soil contamination in this area. Groundwater in the vicinity is impacted by the Solar Ponds Plume. Any groundwater that is encountered will be collected from the excavation, if necessary, to conduct the investigative work. If excessive amounts of groundwater are intercepted in the excavation, the water will either be pumped from the excavation to the surface generally southwest of the SPPTS to allow this water to seep back into the ground, as approved in Contact Record 2008-06, or will be containerized and transported to the SPPTS for treatment (at the discretion of the field crew).

*3 - Resurvey any new surface established in subsurface soil, unless sufficient existing data is available to characterize the surface (or state that the excavated soil will be replaced and the original contours restored)*

Except for the above ground manhole portions of the new collection sump and the hatches for the new valve vault and solar powered pump battery storage vault, final ground contours will approximate the pre-excavation contours. Excess soils generated from the excavation will be used generally for revegetation in the construction area and on-site as available. An as-built survey will be performed after construction is completed.

**Closeout of Contact Record:** This contact record will be closed when the as-built survey is completed and when post-construction revegetation and erosion controls are in place.

**Resolution:** The construction of the collection sump, ancillary equipment and associated piping reconfiguration will be conducted as described in the Contact Record.

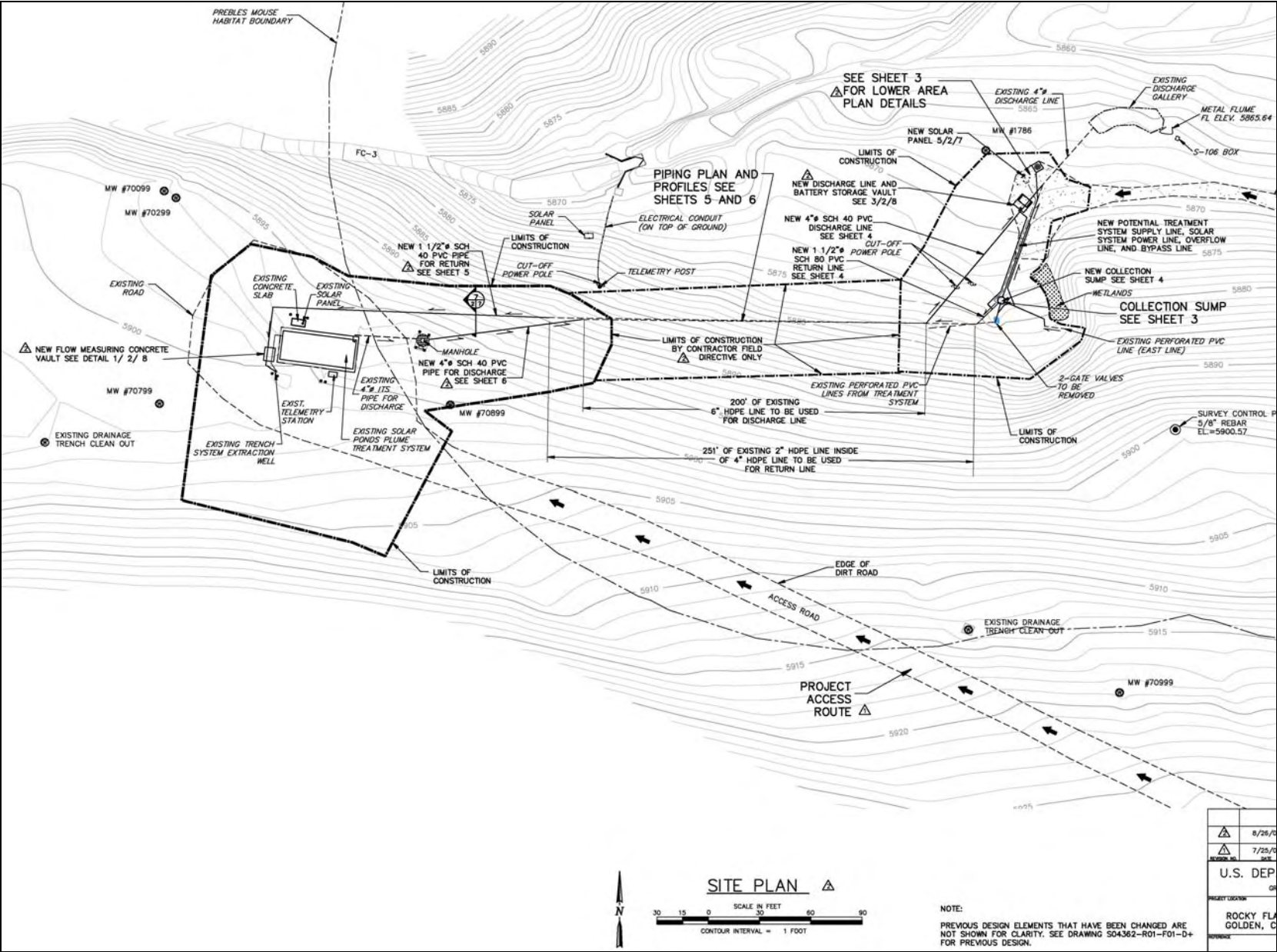
**Contact Record Prepared by:** John Boylan and Rick DiSalvo

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**Distribution:**

Carl Spreng, CDPHE  
Scott Surovchak, DOE  
Linda Kaiser, Stoller  
Rocky Flats Contact Record  
File

Figure 1: Excerpt of engineering drawing no. S04362-R02-F01-D+, showing collection sump and associated components.



## **Contact Record 2008-09**

## **ROCKY FLATS SITE REGULATORY CONTACT RECORD**

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**Purpose:** Revision of sampling locations to reflect Site reconfiguration

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**Contact Record Approval Date:** November 7, 2008

**Site Contact(s) / Affiliation(s):**

Scott Surovchak / DOE; Linda Kaiser / Stoller; Rick DiSalvo / Stoller; John Boylan / Stoller

**Regulatory Contact(s) / Affiliation(s):**

Carl Spreng / CDPHE

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**Discussion:**

Two monitoring locations identified in the RFLMA warrant revision.

1. Sentinel well TH046992 is located in the center of Dam B-3. This well will be abandoned as part of the upcoming dam breach project, following routine RFLMA-required sampling for the fourth calendar quarter of 2008.

Due to the dam breach, a replacement well would need to be situated south of the original well location. However, there already are groundwater monitoring locations in this area: with respect to the current location of well TH046992, Sentinel well 95099 is located approximately 160 ft. to the southeast, and Sentinel well 23296 is located approximately 300 ft. to the southwest. Therefore, the replacement well would be redundant. The pipe routing water from the ETPTS groundwater intercept trench to the associated treatment cells is also located south of and in the immediate vicinity of well TH046992, and would further complicate selection of a replacement location.

Analytical data from well TH046992 have consistently shown few detected contaminants, none above the corresponding levels in RFLMA Attachment 2, Table 1. This is also the case at the nearest well, 95099. The objective of both of these wells is to monitor the distal edge of the East Trenches Plume in the South Walnut Creek drainage.

It is proposed that well TH046992 be abandoned as required, but not replaced; and that RFLMA monitoring continue unchanged at nearby wells 95099 and 23296.

2. Construction of the Solar Ponds Plume Treatment System (SPPTS) upgrade in accordance with CR 2008-08 has recently been completed. The SPPTS treated effluent sampling location is identified in RFLMA Attachment 2, Table 2 as SPPMM01, and represents the water in the bottom of the approximately 15-foot deep metering manhole at the SPPTS.

The upgrade includes a new effluent line. A sampling port was installed on this line to allow effluent sample collection directly from the line rather than from the water in the bottom of the manhole. Upon the approval of this Contact Record, the new monitoring location, SPOUT, will replace SPPMM01.

**Closeout of Contact Record:** This contact record will be closed upon receipt of the approval of the two proposals herein.

**Resolution:** The monitoring network will be revised as stated in this Contact Record, which shall serve as formal notification of these changes. Adoption of this proposal does not constitute a significant change from existing RFLMA requirements. In the next proposed modification to RFLMA Attachment 2, references to well TH046992 will be deleted, and references to location SPPMM01 will be replaced with location SPOUT. Minor changes such as these (and that described in CR-2008-04) will be accumulated and the RFLMA Attachment 2 will be modified to incorporate the accumulated minor changes at the same time.

**Contact Record Prepared by:** John Boylan

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**Distribution:**

Carl Spreng, CDPHE  
Scott Surovchak, DOE  
Linda Kaiser, Stoller  
Rocky Flats Contact Record  
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**Contact Record 2007-06**



# ROCKY FLATS SITE REGULATORY CONTACT RECORD

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**Purpose:** Evaluation of Elevated Nitrate in Ground Water Samples from AOC Well B206989

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**Contact Record Approval Date:** October 12, 2007

**Site Contact(s) / Affiliation(s):**

Scott Surovchak / DOE-LM, John Boylan / S.M. Stoller, Linda Kaiser / S. M. Stoller,  
Rick DiSalvo / S. M. Stoller

**Regulatory Contact(s) / Affiliation(s):**

Carl Spreng / CDPHE

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**Discussion:**

See attached document for discussion.

**Resolution:**

See attached document for resolution.

**Contact Record Prepared by:** John Boylan, S.M. Stoller

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**Distribution:**

Carl Spreng, CDPHE  
Scott Surovchak, DOE  
Linda Kaiser, Stoller  
Rocky Flats Contact Record  
File

## **Evaluation of Elevated Nitrate in Ground Water Samples from AOC Well B206989**

Per the RFLMA, DOE is required to notify the agencies of AOC wells with reportable conditions. A reportable condition for nitrate at well B206989 was declared in the last week of August 2007. Notification of the CDPHE was made in a meeting at the Rocky Flats office on August 30, 2007. This document provides the RFLMA-required plan and schedule for an evaluation to address this specific occurrence.

### **Background**

Well B206989 was classified as a Sentinel well until the signing of the RFLMA on March 14, 2007, at which point it was reclassified as an AOC well. This new classification has reportable requirements associated. Reportable conditions are triggered when the concentration of an analyte exceeds the corresponding RFLMA Table 1 level or uranium threshold for two consecutive routinely-collected samples (i.e., two consecutive semiannual samples).

Well B206989 is located at the toe of the Landfill Pond dam. It is screened in weathered bedrock. Analytical data from this well have often appeared anomalous; for example, concentrations of nitrate + nitrite as N (herein termed nitrate) and uranium typically exceed those in samples from other nearby wells, indicating these results are not indicative of a plume of contamination. (This document addresses only nitrate, as the uranium concentrations have not exceeded the 120 ug/L threshold since the RFLMA was signed.) The anomalous water quality does not appear to be associated with the landfill wastes.

The sample collected from this well in June 2007 contained 27 mg/L nitrate, exceeding the applicable Table 1 standard of 10 mg/L. (The 100 mg/L Temporary Modification does not apply to wells in the No Name Gulch drainage.)

Although this was only the first sample collected under its new AOC classification, because the result was consistent with previous data the DOE decided to consider the result a reportable condition. This document proposes a response to that condition. The response focuses on a statistical evaluation of the analytical data for nitrate from this well, with the results of that evaluation driving any subsequent action that may be necessary.

### **Data Summary**

Table 1 below summarizes nitrate data from well B206989 collected since 2000. The 10 mg/L standard and the 100 mg/L Temporary Modification for Segment 5 are also included for reference. As shown, the June 2007 results are generally consistent with previous results, only one of which is less than the 10 mg/L standard.

Figure 1 presents these data in a time-series plot, and includes a best-fit regression trend line. The  $r^2$  value, 0.1266, suggests the fit is not particularly good. This is to be expected given the variability of the data. Even so, the visually apparent overall decrease is confirmed.

Figure 2 shows the same data, but includes a trend calculated using the Seasonal-Kendall trending method. Once again, a decreasing trend is evident. But again, the statistical confidence is not high; as shown, the trend does not meet an 80% level of significance.

### **Recommended Response**

Three different approaches – one subjective (visual) and two objective (regression and Seasonal-Kendall trend calculation) – suggest concentrations of nitrate in ground water samples from well B206989 are decreasing. Therefore, it does not appear likely that the nitrate concentrations reported for ground water in this well will impact surface water quality at the Point of Compliance (POC).

Installing a replacement well has been discussed in the past due to the anomalous results generated by samples from well B206989. However, given the apparent decreasing trend in nitrate, well replacement at this time would probably represent an unnecessary cost and should be postponed unless and until a potential negative impact to surface water quality is indicated (i.e., the concentration trend is increasing) and downstream surface water exceeds the nitrate standard at the POC.

The following evaluation strategy is recommended:

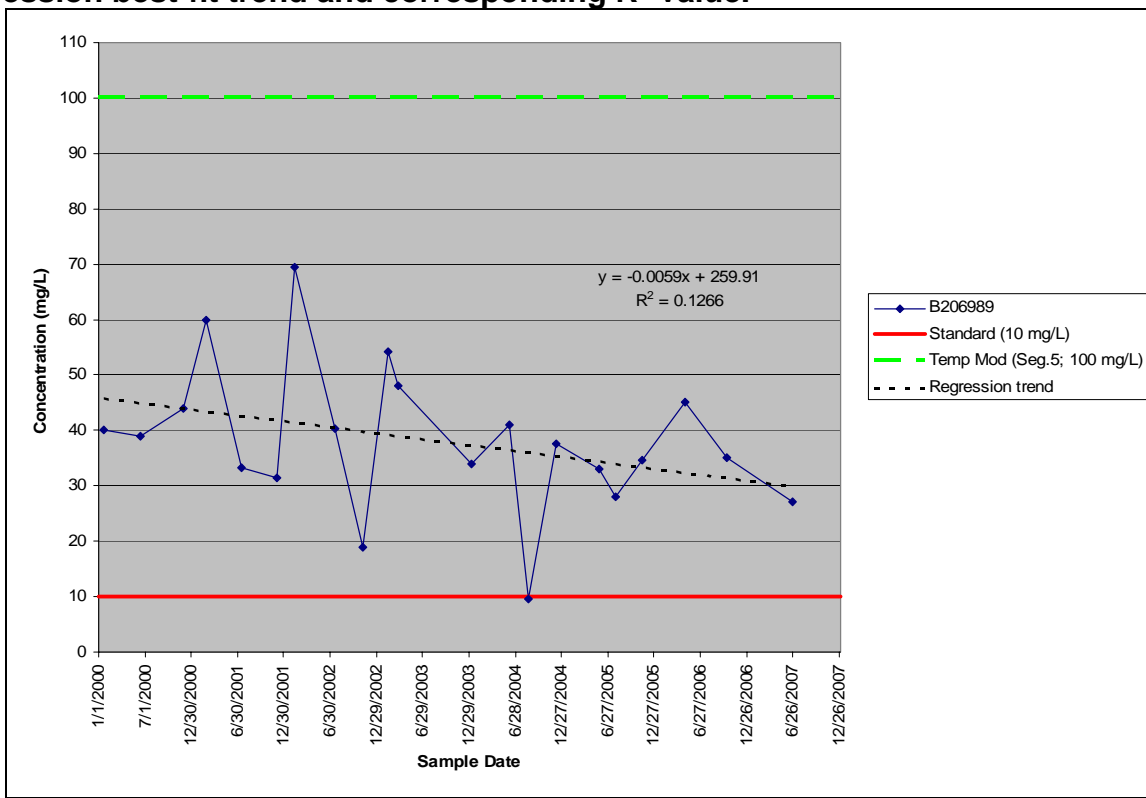
1. Well B206989 will continue to be monitored semiannually as an AOC well, in accordance with the RFLMA except as described below.
2. Nitrate data will continue to be evaluated for trend. Exceedance of the nitrate standard will not trigger additional reportable conditions, as the evaluation will still be ongoing.
3. If and when a decreasing Seasonal-Kendall trend in nitrate concentrations with a level of significance of 80% is reached, the CDPHE shall be notified and this formal evaluation shall conclude.
4. Alternatively, if an increasing Seasonal-Kendall trend in nitrate concentrations is indicated, even at less than 80% significance, consultation with the CDPHE shall commence on the next phase of the evaluation, which shall incorporate all additional information then available.
5. If the level of significance of the nitrate trend still has not reached 80% following receipt of data from the last routinely-collected sample in calendar year 2011, and a subset of the nitrate results from the most recent 8 routine semiannual samples also lacks this level of significance, the DOE and CDPHE shall consult to determine whether an alternative to or modifications of this strategy are warranted based on all then-available data. (The date 2011 is arbitrarily selected to encompass the next CERCLA 5-year review period; the minimum number of samples required to calculate a Seasonal-Kendall trend is 8.)
6. Following conclusion of this evaluation via Step 3 above, if concentrations still frequently exceed the standard, the DOE and CDPHE shall discuss whether a unique definition of reportable conditions should be established for nitrate in well B206989.

**Table 1. Concentrations of nitrate in ground water samples from well B206989 since January 2000.**

Date Sampled	Nitrate Concentration, mg/L
1/19/2000	40
6/15/2000	39
11/30/2000	44
2/28/2001	60
7/17/2001	33.3
12/4/2001	31.4
2/11/2002	69.4
7/18/2002	40.3
11/6/2002	19
2/12/2003	54.1
3/25/2003	48
1/7/2004	34
6/3/2004	41
8/18/2004	9.55
12/6/2004	37.5
5/26/2005	33.1
7/28/2005	28
11/9/2005	34.6
4/26/2006	45
10/10/2006	35
6/26/2007	27

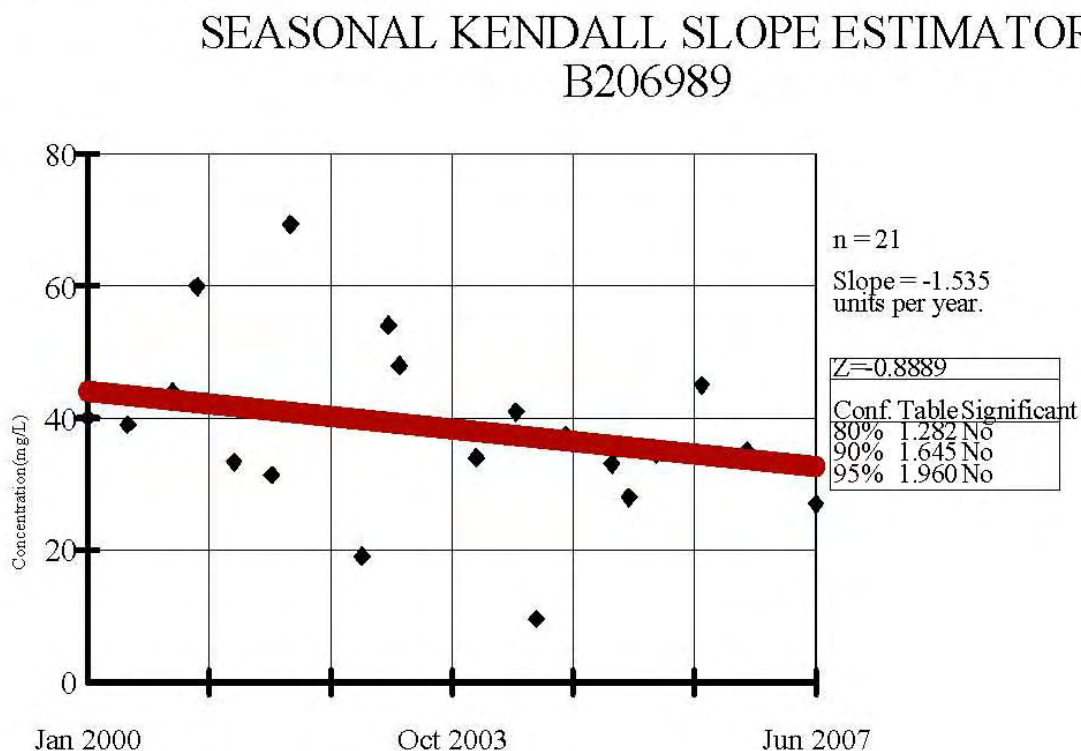
NOTE: Results reported as nitrate + nitrite as N. Field duplicates, equipment rinsates, and special No Purge sampling method-evaluation samples omitted.

**Figure 1. Time-series plot of analytical data from Table 1 together with calculated regression best-fit trend and corresponding R<sup>2</sup> value.**



**Figure 2. Plot of analytical data from Table 1 together with calculated Seasonal-Kendall trend.**

v.8.7.009. For the statistical analyses of ground water by SM Stoller only. EPA



trate + Nitrite as Nitrogen (mg/L)      Facility: Rocky Flats Site      Data File: B206989 nitrate 8-07 for Evaluation\_San  
Date: 9/27/07, 2:18 PM      Client: SM Stoller      View: \_Batch\_

**Contact Record 2007-07**

# ROCKY FLATS SITE

## REGULATORY CONTACT RECORD

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**Purpose:** Replacement of Monitoring Well 45605 (B991 Slump)

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**Contact Record Approval Date:** November 29, 2007

**Site Contact(s) / Affiliation(s):** Scott Surovchak / DOE; John Boylan / Stoller;  
Linda Kaiser / Stoller

**Regulatory Contact(s) / Affiliation(s):** Carl Spreng / CDPHE

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### **Discussion:**

Monitoring well 45605 was installed as a Sentinel well to monitor the disrupted French drain that fed surface water location SW056 (prior to closure). To address the low concentrations of VOCs in water discharged by the drain, this outlet was removed during Site closure and the drain was disrupted. (See *Closeout Report for Surface Water Station SW056 Outfall*, Nov. 2005, for more information.)

Following this, the constructed hillside in which the French drain was installed became unstable and a slump developed. The slump eventually damaged the monitoring well, reduced its useful lifetime, and presented health and safety concerns for personnel working in the area. In October and November 2007 well 45605 was abandoned and this slumping hillside was regraded.

### **Resolution:**

Now that the regrade has been completed, the replacement of well 45605 can proceed. The original well was installed in consultation with the regulators, and was situated approximately 10 ft. north (downgradient) of the buried French drain and 10 ft. west (upgradient) of the disrupted eastern end of the drain. This location provided access to ground water collected by the remnants of the drain. The replacement well will be installed approximately 10 ft. west of the previous well location (so as to be beyond the area of disturbance posed by the original borehole, but still monitor collected ground water), using survey coordinates to determine this location. The diameter of the replacement well will be between 0.75 inch to 2 inches. The design of the well will approximate that of well 45605, taking into account the regrading that has been performed and limitations of well materials (i.e., standard lengths), and the need to satisfy the original DQOs. The well will penetrate at least a few inches into the weathered bedrock and monitor what may be reasonably expected to represent the saturated surficial materials (predominantly artificial fill), as did the original well. The method used to install the well will be at the Site's discretion, and may range from direct-push methods (e.g., Geoprobe™) to sonic, hollow-stem auger, or other drill rig; any method that uses no drilling fluids or other potential contamination agents to install the well will provide the necessary borehole information and an appropriate monitoring well.

The well will be identified as either 45607 or 45608, depending on whether it is installed in calendar year 2007 or 2008. The exact timing of this installation is at the Site's discretion, but will be completed sufficiently in advance of the end of the second calendar quarter of 2008 to allow well development and the collection of ground water samples representing that quarter. The monitoring classification, analytical suite, and all other DQOs and requirements previously met by well 45605 shall be transferred to the replacement well.

**Contact Record Prepared by:** **John Boylan**

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**Distribution:**

Carl Spreng, CDPHE

Scott Surovchak, DOE

Linda Kaiser, Stoller

Rocky Flats Contact Record

File



**Contact Record 2007-08**

## **ROCKY FLATS SITE REGULATORY CONTACT RECORD**

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**Purpose:** Changes to Present Landfill Inspection and Monitoring Frequencies and Modification of the PLF Monitoring and Maintenance Plan.

**Contact Record Approval Date:** December 21, 2007

**Site Contact(s) / Affiliation(s):** Scott Surovchak, DOE, Linda Kaiser, S.M. Stoller, Jeremiah McLaughlin, S.M. Stoller, George Squibb, S.M. Stoller, John Boylan, S.M. Stoller, Jody Nelson, S.M. Stoller, Rick DiSalvo, S.M. Stoller

**Regulatory Contact(s) / Affiliation(s):** Carl Spreng / CDPHE

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**Discussion:** The Present Landfill Monitoring and Maintenance Plan and Post-Closure Plan, May 2006, (PLF M&M Plan) includes certain inspection and monitoring requirements that may be changed or phased out over time as conditions warrant, in accordance with the PLF M&M Plan. Also, the PLF M&M Plan was written before the Corrective Action Decision/Record of Decision (CAD/ROD) was approved in September 2006 and the Rocky Flats Legacy Management Agreement (RFLMA) to implement the CAD/ROD was drafted and became effective in March, 2007. The PLF M&M Plan is incorporated by reference as an enforceable requirement of RFLMA (See RFLMA Attachment 2, section 5.3.1, and Tables 1-3). RFLMA terminated and supersedes the Rocky Flats Cleanup Agreement (RFCA) and the PLF M&M Plan references RFCA in certain sections.

This Contact Record is to document changes in inspection frequencies, completion of certain monitoring requirements that now may be phased out, clarification of vegetation inspection schedules and completion criteria in accordance with the PLF M&M Plan. It is also to document agreement between DOE and CDPHE to revise the M&M Plan so that the M&M Plan text recognizes the implementation of the remedy under RFLMA.

Pursuant to RFLMA paragraph 66, DOE and CDPHE do not consider these items to constitute a significant change from existing requirements of RFLMA, and this Contact Record shall be used to provide public notice of modifications to the PLF M&M Plan. Also, CDPHE may approve modifications to RFLMA Attachments pursuant to RFLMA paragraph 65. (Note that the Original Landfill (OLF) M&M Plan will also require updating revisions, since it was also approved prior to RFLMA. DOE will consult with CDPHE on changes to the OLF M&M Plan after the ongoing investigation of seeps and slumping on the OLF soil cover is completed.)

The groundwater and surface water monitoring plans in the PLF M&M Plan reference RFCA and the RFCA Integrated Monitoring Plan. These have been superseded by RFLMA, so the PLF M&M Plan revision will reflect the RFLMA requirements, which include the following RFLMA Attachment tables and figures:

- Table 1, Surface Water Standards
- Table 2, Water Monitoring Locations and Sampling Criteria
- Table 3, Present and Original Landfill Inspection and Maintenance Requirements
- Figure 10, RCRA Wells
- Figure 11, Groundwater Treatment Systems

Inspection Frequencies: Table 1, below, shows the PLF inspection frequency requirements as summarized in RFLMA Attachment 2, Table 3 that are being changed, and the new frequencies. Note that the frequencies for stability and erosion control inspections were evaluated in the recently completed CERCLA periodic review, as described in the *Second Five-Year Review Report for the Rocky Flats Site*, September 2007. The next CERCLA five-year review will be conducted in 2012.

Table 1

<b>RFLMA Inspection and Maintenance Requirements – derived from RFLMA Attachment 2, Table 3</b>		<b>Result of consultation and 5-Year review</b>
<b>Requirement and Description of Activity</b>	<b>Frequency/Status</b>	<b>New Frequency</b>
Final cover inspection and monitoring <ul style="list-style-type: none"> <li>✓ inspect/monitor slope stability, soil cover</li> <li>✓ visually inspect surface of landfill cover for cracks, depressions, heaving, and sinkholes</li> </ul>	monthly for first year/completed	quarterly – evaluate frequency in subsequent CERCLA periodic review
Final cover inspection and monitoring <ul style="list-style-type: none"> <li>✓ monitor settlement monuments and side slope stability monuments</li> </ul>	quarterly for first year/completed	annually – evaluate frequency in subsequent CERCLA periodic review
Final cover inspection and monitoring <ul style="list-style-type: none"> <li>✓ vegetation monitoring</li> </ul>	quarterly for first year/completed	monthly for noxious weeds during growing season (April-September) and annually for vegetation until PLF M&M Plan quantitative grassland success criteria is met.
Final cover inspection and monitoring <ul style="list-style-type: none"> <li>✓ additional weather-related inspections after storm event of one inch or more of rain in a 24-hour period or significant melt of 10-inch or more snowstorm</li> </ul>	after event (no time specified)/ongoing	within 2 days after event (This is consistent with RFLMA Attachment 2, Table 3 for the OLF.)
Inspection and monitoring of stormwater management system and erosion control features <ul style="list-style-type: none"> <li>✓ visually inspect stormwater management structures (channels/lining, culverts, and outfalls)</li> <li>✓ visually inspect erosion control features (perimeter channels and natural drainages);</li> <li>✓ visually inspect seep treatment system</li> </ul>	monthly for first year/completed	quarterly – evaluate frequency in subsequent CERCLA periodic review
Inspection and monitoring of stormwater	after event (no time	within 2 days after event

<b>RFLMA Inspection and Maintenance Requirements – derived from RFLMA Attachment 2, Table 3</b>		<b>Result of consultation and 5-Year review</b>
<b>Requirement and Description of Activity</b>	<b>Frequency/Status</b>	<b>New Frequency</b>
management system and erosion control features <ul style="list-style-type: none"> <li>✓ additional weather-related inspections after storm event of one inch or more of rain in a 24-hour period or significant melt of 10-inch or more snowstorm</li> </ul>	specified)/ongoing	(This is consistent with RFLMA Attachment 2, Table 3 for the OLF.)

Water Monitoring Sampling Criteria: Two PLF water monitoring locations specified in the PLF M&M Plan, the Groundwater Interceptor System (GWIS) influent to the PLF Treatment System (PLFTS), are required by the PLF M&M Plan to be sampled for one year, and the results evaluated by the RFCA Parties. These two locations, identified as GWISINFNORTH and GWISINFSOUTH in RFLMA Attachment 2, Table 2 have been sampled quarterly for the last two years. These locations are included in the evaluations required in RFLMA Attachment 2, Figure 11, and monitoring may be discontinued based on the consultative process. The results have been evaluated by DOE and CDPHE and the data do not present any reason to continue quarterly sampling. Thus, the frequency for sampling in RFLMA Attachment 2, Table 2 will be changed to “discontinued”. A footnote will be added to indicate these sampling locations may be used for investigation purposes.

In addition, the PLF M&M Plan requires sampling the PLFTS effluent for metals, plutonium, isotopic uranium, volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). RFLMA Attachment 2, Table 2 does not include sampling for plutonium. To resolve differences in the PLF M&M Plan and RFLMA analyte lists, the PLF M&M Plan will be revised to defer to the analytes in RFLMA.

Table 2, below, shows the PLF water monitoring requirements as summarized in RFLMA Attachment 2, Table 2, that are being changed and the new requirement.

Table 2

<b>RFLMA water Monitoring Locations and Sampling Criteria Requirements – derived from RFLMA Attachment 2, Table 2</b>		<b>Result of consultation</b>
<b>Requirement and Description of Activity</b>	<b>Frequency/Status</b>	<b>New Frequency</b>
Present Landfill Treatment System <ul style="list-style-type: none"> <li>✓ GWISINFNORTH</li> <li>✓ GWISINFSOUTH</li> </ul>	quarterly for VOCs, Isotopic U, metals, nitrate	discontinue – add footnote indicating may be used for investigation purposes

Other Criteria: Surface water standards may change from time to time, based upon regulatory actions, and RFLMA Attachment 2, Table 1 will be updated to reflect changes from time to time. Since the PLF M&M Plan will be changed to defer to the RFLMA analyte list, no changes to the PLF M&M Plan will be required if surface water standards change in the future. Currently, there are no changes needed for RFLMA Attachment 2, Table 1.

**Resolution:** The PLF inspection and monitoring frequencies shall be implemented as described in Table 1 and 2 of this Contact Record, above, and RFLMA Attachment 2, Tables 2 and 3 will be modified accordingly. The PLF M&M Plan will be modified as described herein.

Pending the submittal of the modifications for approval, Carl Spreng, CDPHE, approved the immediate implementation of the changed inspection frequencies and water monitoring sampling criteria as described in this Contact Record.

DOE anticipates the modifications to RFLMA Attachment 2, Tables 2 and 3, and the modifications to the PLF M&M Plan will be submitted to CDPHE for approval by January 1, 2008. There are no changes needed for RFLMA Attachment 2 Figures 10 and 11.

**Closeout of Contact Record:** The status of actions or activities documented by RFLMA Contact Records will be documented by DOE from time to time, and included in RFLMA quarterly and/or annual surveillance and maintenance reports for tracking purposes. This Contact Record will be closed when:

- Modified RFLMA Attachment 2, Tables 2 and 3 approved by CDPHE and posted to the DOE website. Notification of the availability of the modification made by DOE in accordance with RFLMA Appendix 2, *Public Involvement Plan*.
- Modified PLF M&M Plan approved by CDPHE and posted to the DOE website. Notification of the availability of the modification made by DOE in accordance with RFLMA Appendix 2, *Public Involvement Plan*.

**Contact Record Prepared by:** Rick DiSalvo, S.M. Stoller

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**Distribution:**

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Rocky Flats Contact Record  
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